

Young people's alcohol consumption and its relationship to other outcomes and behaviour

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The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

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Summary

Introduction

Alcohol consumption among young people has been linked to a range of negative outcomes, both contemporary (such as lower educational attainment, smoking and criminal behaviour) and later in life (such as increased risk of drug and alcohol dependence and poorer mental and physical health). However, little research has been done looking at how these behaviours and outcomes are related to one another, which are the most important and what the causal links might be. There seems little doubt that excessive drinking among young people is damaging to themselves and potentially to others, but this study is designed to clarify young people's drinking patterns, with particular emphasis on chains of behaviour that may lead to negative outcomes.

Aims of the study

The main aims of this project are set out below:

- Determine the characteristics of young people who have had an alcoholic drink and compare with the characteristics of those who have not
- Look for distinct types or patterns of drinking among young people (in terms of frequency and how this changes over time)
- Explore the relationship between different patterns of drinking behaviour and other behaviours, attitudes and outcomes
- Determine how changes in drinking behaviour relate to changes in other behaviours and what the direction of causality might be

Dataset and methods

To explore patterns of alcohol consumption we used pupils recruited into the Longitudinal Study of Young People in England (LSYPE). This is a study which began in 2004 by interviewing over 15,000 young people aged 14 at the beginning of the study and sampled from schools in England, as well as their main and secondary parents if these were available. The same young people have been re-interviewed every year, and we were therefore able to follow their progress up to age 17 for this study.

The LSYPE dataset contains information on the young person's family characteristics, theirs and their parents' attitudes and aspirations and their experiences of school. The data have also been linked to the National Pupil Database (NPD), which not only allows us to record these pupils' attainment at Key Stages 2, 3 and 4, but also provides information on school-level factors such as ethnic composition and the proportion of pupils receiving free school meals. Finally, the NPD also contains information on geographical indicators as well as measures of area deprivation.

Key findings

As in other studies looking at young people's alcohol consumption (Fuller, 2009), we found that girls were slightly more likely to have tried alcohol than boys up until the age of

17. We also found that white young people and those who were not religious were much more likely to drink, and more likely to drink frequently. Somewhat surprisingly, we found a strong link between being bullied and frequent drinking, which bears further investigation. We also found some evidence of a “drinking culture” in certain schools, with pupils more likely to drink in schools where there was a higher proportion of white pupils or pupils who did not receive free school meals (FSM), regardless of their own ethnicity or eligibility for FSM.

When we used causal models to explore links between different behaviours, we found that a number of other behaviours predicted trying alcohol for the first time among the subgroup of young people who had not previously tried alcohol at ages 14 or 15. These included playing truant, shoplifting, going to parties or pubs and hanging around near home or in town, but especially smoking and trying cannabis. The relationship between smoking, trying cannabis and drinking alcohol was equally strong in reverse, suggesting that the relationship is reciprocal: the risk of trying one having tried the other is equally likely without any obvious direction of causality (although we are not saying that one inevitably leads to the other). Trying alcohol was a little more predictive of playing truant than the other way around, although again the relationship was fairly reciprocal, suggesting that young people who skip school have more unsupervised time to drink. However, drinking alcohol was also a strong predictor of engaging in criminal activity with little to no evidence of a reverse causality, indicating that drinking tends to be the driver of increased criminal behaviour rather than the reverse. Unsurprisingly, we also found that young people who were going to parties or pubs or hanging around in groups were more likely to try alcohol, as these are settings where alcohol is likely to be available without the supervision of parents.

It therefore appears that several risky behaviours are causally linked with having tried alcohol, although none of these behaviours was found to lead to an increase in the frequency of drinking among young people who had already tried alcohol. Interventions to reduce young people’s drinking may therefore result in a reduction in prevalence of a number of other behaviours such as smoking, cannabis use, truancy and youth crime.

Finally, we found that drinking was associated with a number of negative educational outcomes, such as the likelihood of being not in employment, education or training (NEET), lower GCSE scores, and not remaining in full-time education beyond the age of 16. In the case of being NEET and leaving full-time education, this relationship was almost entirely explained by the link between drinking and other negative behaviours, particularly truancy and being suspended from school. As our analyses show, these behaviours are more likely to be a consequence than an antecedent of drinking, and it therefore appears that drinking may be an important factor in levels of other risky behaviours which are associated with leaving full time education. Reduction of alcohol consumption among young people may therefore help to reduce young people’s chances of becoming NEET indirectly through a reduction in their risk of participating in other risky behaviours.

In the case of GCSE scores, it was mostly attitudes (including the young person’s and their main parent’s attitude to school) as well as parental involvement with the school,

family cohesion and the young person's aspirations for post-compulsory education that explained most of the relationship between drinking and attainment. Other risky behaviours appeared less important in this relationship than they were for the young person's post-16 destination, and instead it is likely that there may be a cycle of lower aspirations/poor attitude to education and alcohol consumption that ultimately leads to lower attainment. It may therefore be possible to reduce drinking among young people and ultimately raise their attainment by focusing on their educational aspirations and working to improve attitudes to school among young people and their parents.

Conclusions and recommendations

As shown in previous studies (Fuller, 2009; Warwick *et al*, 2009), these results provide evidence of the most vulnerable groups who should be the target of initiatives to reduce young people's drinking. These include girls (aged 14-16) and those who have experienced bullying (with the latter being a factor not emphasised by previous studies). We also identified a number of factors that appeared protective against drinking, which included being in a minority ethnic group and having a religion that was important to the young person. In addition, our results show that school-level initiatives may be important in schools where elements of a 'drinking culture' may have developed (i.e. schools with a high proportion of white pupils and/or a low proportion of pupils receiving free school meals).

In common with the results of a previous NatCen study (Cebulla and Tomaszewski, 2009), we found that taking part in self-developmental activities (such as doing community work or reading for pleasure) did not have any impact on drinking behaviour. Our results do suggest, however, that improving attitudes and aspirations, as well as family cohesion, is likely to reduce prevalence and frequency of drinking among young people. In addition, reducing the numbers of young people drinking (and/or reducing the frequency of drinking among those who do drink) would almost certainly reduce the incidence of a number of other risky behaviours (such as crime, truancy, smoking and cannabis use), which we found to be a consequence of alcohol consumption.

We found that drinking was strongly linked to leaving full time education at 16 and particularly to becoming NEET, but that this relationship was largely explained by links between drinking and other behaviours such as truancy, being suspended from school, hanging around near home and smoking. Drinking was also linked to poorer GCSE results, but in this case the relationship was mainly explained by lower attitudes towards education and aspirations for the future, which are likely to act cyclically with participation in risky behaviours, ultimately leading to lower attainment. It therefore appears that attitudes and aspirations are the driver of a number of negative outcomes including drinking, other risky behaviours and subsequent educational outcomes. If young people have positive attitudes towards their education and if they have high long-term aspirations, then they are less likely to become involved in risky behaviours while at school. It is therefore the attitudes and aspirations (including levels of family cohesion) of young people that must be tackled in order to reduce young people's drinking.

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1 Introduction

1.1 Background

This project aims to inform thinking about future policy around young people's alcohol consumption by defining the characteristics of young people who drink alcohol to varying frequencies, and investigating causal links between drinking alcohol and other behaviours and outcomes. Young people's alcohol consumption is currently a subject of great concern in England, with many adults believing that alcohol misuse among young people is a bigger problem than illicit drug use (DCSF, Home Office and DoH, 2008). Guidance from the Chief Medical Officer of England indicates that children should not consume alcohol at all until the age of 15 years, after which they should do so only under parental guidance and in a supervised environment (DCSF, 2009).

Despite these guidelines, young people continue to drink alcohol, and commonly this occurs in an unsupervised context with their peers (Fuller, 2009). It is therefore important to determine particular patterns of drinking that may be especially damaging to young people, or more strongly associated with negative outcomes. This research project seeks to clarify these relationships and to explore possible chains of behaviours in order to determine where alcohol consumption lies on the pathway to negative outcomes for young people. It also builds on an earlier report commissioned by DCSF and undertaken by NatCen (Cebulla and Tomaszewski, 2009), which explored young people's alcohol consumption as part of a range of 'risky behaviours' but did not identify causal links between these behaviours.

In summary, the study uses the questions asked in the Longitudinal Study of Young People in England (LSYPE) to explore patterns of alcohol consumption among young people in England aged 14-17, in terms of how often they drink and how this changes over time. We will explore the characteristics of young people with different patterns of consumption, and look at how these relate to other behaviours, attitudes and outcomes. These analyses should provide evidence to help with the implementation of the Government's PSA target to "increase the numbers of children and young people on the path to success" (DCSF, Home Office and Department of Health, 2008), which explicitly includes a national indicator on reducing young people's use of alcohol and drugs.

1.2 Aims of the project

- Determine the characteristics of young people who have had an alcoholic drink and compare with the characteristics of those who have not
- Look for distinct types or patterns of drinking among young people (in terms of frequency and how this may change over time)

- Explore the relationship between different patterns of drinking behaviour and other behaviours, attitudes and outcomes
- Determine whether changes in drinking behaviour relate to changes in other behaviours and what the direction of causality might be

2 Literature Review

Recent NHS research undertaken by NatCen has shown that 52% of pupils aged 11-15 have had at least one alcoholic drink in their lifetime, but that this proportion has actually fallen since 2003, when it was 61% (Fuller, 2009). However, the same research showed that 38% of young people aged 15 had drunk alcohol in the past week, and that the average amount drunk by 11-15 year olds was 14.6 units (the equivalent of around 7 pints of lager or around 7 glasses of wine), which represents a large increase in magnitude of drinking over the past fifteen years (although amounts are not directly comparable since the method of measuring alcohol consumption changed in 2007). There is also evidence to suggest that young people are beginning to drink at earlier ages and that this increasingly occurs unsupervised and in public places, with accompanying risks of violent and anti-social behaviour (Warwick *et al*, 2009).

The Government's aim is to reduce alcohol consumption among young people and to tackle its associated problems, particularly in light of the new guidance from the Chief Medical Officer of England (DCSF, 2009). However, convincing young people to abstain from alcohol altogether may be an impossible task, particularly since in a society where alcohol use is normalised, drinking is often seen as a common and unproblematic part of the transition into adulthood (Newburn and Shiner, 2001). Newburn and Shiner have drawn attention to this ambiguous role of alcohol in Britain: "On the one hand, alcohol is consumed by a very large number of people for pleasure without any major problems occurring in the short or longer term. However, on the other hand, when used to excess, alcohol is associated with a range of harms that place it ahead of illicit drugs as a source of individual and social harms" (2001, p.68).

This ambiguity might lead to problems whereby young people do not recognise their drinking as problematic because consumption of large amounts of alcohol is so commonplace and is viewed more positively by adults than other activities such as illicit drug use (Define Research and Insight, 2008, Warwick *et al*, 2009). It may therefore be beneficial to determine particular frequencies and patterns of alcohol consumption among young people that may be particularly likely to lead to harms, and which may be associated with particular groups of young people (e.g. those with particular social backgrounds or with particular attitudes). These may then draw attention to those groups for whom it is most important that their alcohol consumption is tackled through policy initiatives.

Evidence already available suggests that the levels of risk related to alcohol consumption by young people are dependent upon factors including the setting in which they live (such as the level of local deprivation and regional, community or family cultures of alcohol consumption), particular types of drinking behaviour (such as drinking large amounts in short periods of time or drinking every day), the social meanings attached to drinking (such as bonding with friends or relieving stress) and who the young person is drinking with (whether family or friends) (Honess *et al*, 2000, Warwick *et al*, 2009). There is also evidence that young people's patterns of alcohol consumption may change rapidly with

age. For instance, at the age of 11, most young people do not drink at all, and if they do it tends to be at home with their parents; by the age of 13, they tend to drink slightly more often, and are beginning to do so outside the home; and by the age of 15, most young people drink and are more likely to do so away from home or in public places, and with their friends rather than their families (Fuller, 2009). It is therefore important for us to discover what changes take place to accompany these different behaviours between the ages of 13 and 16.

In young people whose alcohol consumption appears to be particularly problematic, there have been found to be a number of associated harms for both the young person themselves and wider society. Identified risks to the individual young person include accidents, physical and mental health problems, sexually transmitted infections, teenage pregnancy and poor school performance, as well as an increased risk of alcohol dependence and illicit drug use in adulthood (Department of Health, Home Office, Department for Education and Skills and Department for Culture, Media and Sport, 2007; Strandheim *et al*, 2009a; Strandheim *et al*, 2009b). Social risks include anti-social behaviour, drink-driving and violence, as well as an increased risk of criminal behaviour in adulthood (DCSF, Home Office and Department of Health, 2008). Young people drinking in public spaces is a particular concern, as this may involve clusters of risky or anti-social behaviours (such as vandalism, graffiti etc.) and present a number of social problems. Self-reported offending findings from the 2004 Offending, Crime and Justice Survey show that 37% of all offences reported by 10-17 year olds were committed by those who drank at least once a week, even though this represented only 14% of the survey respondents (Matthews *et al*, 2006). Although these results showed particularly strong relationships between drinking and violent offences, drug-related offences, criminal damage and theft, it is impossible to draw causal links from this study, and therefore the present research project is likely to be able to shed greater light on these relationships.

It is important for us to understand specifically what harms are related to young people's drinking (and what patterns of drinking these relate to) and how these affect young people. For example, rather than alcohol misuse leading to anti-social behaviours, there may be common antecedents such as social disadvantage, family problems, behavioural problems and peer group influences (Newburn and Shiner, 2001). It is important to disentangle these effects in order to determine the true risks associated with young people's drinking. It may also be important to differentiate between patterns of drinking that are hazardous in the short term (i.e. drinking large amounts, which may lead to risky and anti-social behaviour) and those that may be harmful to health in the long term (i.e. sustained moderate or heavy drinking) (Department of Health, Home Office, Department for Education and Skills and Department for Culture, Media and Sport, 2007). Again, the present study has the ability to clarify these issues somewhat by specifically investigating the relationships between alcohol consumption and other behaviours.

A recent study conducted by NatCen on behalf of DCSF explored a number of risky behaviours (including alcohol consumption) that young people engage in using data from the Longitudinal Study of Young People in England (Cebulla and Tomaszewski, 2009). Interestingly, the study found little evidence of educational harms associated with alcohol

use among young people. Those who regularly drank alcohol (i.e. once a week or more) were found to actually have higher GCSE results than those who did not, even if they drank consistently over the three years of the study. In addition, no significant effect of alcohol consumption on the young people's main activity at the age of 17 was observed. However, other possible harms such as criminal behaviour and teenage pregnancy were not investigated, and no causal models were used in order to determine the pathways linking various behaviours among young people.

Therefore, although the study concluded that alcohol use might not be as damaging as other forms of risky behaviour, further investigation of the causal processes at work is necessary. This research aims to build on the results of the previous study using more complex causal models and focusing specifically on alcohol consumption rather than on a range of risky behaviours. It would certainly be unwise to conclude from previous results that alcohol consumption might not have harmful effects on young people's education and other outcomes. This study therefore aims to clarify the magnitude of the potential harms associated with alcohol consumption as well as exploring the chain of events leading to negative outcomes and the characteristics of the young people thought to be most at risk.

3 The LSYPE Dataset

3.1 Background of the dataset

The Longitudinal Study of Young People in England (LSYPE) is a large, nationally representative survey designed to follow a single cohort of young people from the age of 14 to 25. The study began in 2004, when over 15,500 young people from all areas of England born between 1st September 1989 and 31st August 1990 were interviewed. These young people are tracked and re-interviewed every year, and the study has now completed its sixth wave of interviews, with the respondents now aged 19/20 and a sample size of approximately 10,000.

LSYPE is managed by the Department for Children, Schools and Families (DCSF), and fieldwork is carried out by a consortium led by the British Market Research Bureau (BMRB). It is a highly detailed and in-depth survey, and the data are publicly available from the UK Data Archive (Waves 1-4 are currently available). Because LSYPE is a longitudinal study, it is possible to link data between waves and explore young people's transitions and changing attitudes as they grow older.

3.2 Purpose of the LSYPE study

The main objectives of the study are:

- To provide evidence on key factors affecting educational progress and attainment from the age of 14.
- To provide evidence about the transitions young people make from education or training to economic roles in early adulthood.
- To help monitor and evaluate the effects of existing policy and provide a strong evidence base for the development of future policy.
- To contextualise the implementation of new policies in terms of young people's current lives.

3.3 Information available from the study

As well as interviews with the sampled young people, LSYPE also includes interviews with parents or guardians (both main carers and secondary carers if available) in its first three waves. Only the main carer was interviewed at Wave 4, while at Wave 5 no parents or guardians were interviewed, as the young people are likely to be more independent at this stage. There is also a self-completion section used to record more sensitive information from the young person. The main types of information available from the core LSYPE dataset are listed below, divided into the categories in which the questions are asked:

- *Family background* – including household situation, languages spoken in the home, family activities, household responsibilities and resources, parental

qualifications and education, parental occupations and employment history, parental health, household benefits and tax credits and estimates of household income.

- *Parental attitudes* – including attitudes to the young person's school and involvement in education, parental expectations and aspirations for the young person, school history, vocational courses and choice of current school.
- *Young person characteristics* – including demographics, health, Year 10 subject choices and reasons for these, rules and discipline at school, homework, ICT, study support, future plans and advice, household responsibilities, use of leisure time, subjects being studied and expected qualifications and knowledge of and intentions towards apprenticeships and related schemes.
- *Young person self-completion* – including relationships with parents, risk factors such as drinking and smoking and attitudes to school.
- *Household grid* – includes information about every household member (sex, marital status, employment status and ethnic group) and their relationship to other household members including the young person.

Data linkage

The LSYPE data have been linked to administrative data held on the National Pupil Database (NPD), a pupil-level database which matches pupil and school characteristics to attainment. The data are also linked to school-level and Local Authority-level indicators such as school size, proportion of pupils gaining five or more GCSEs at grades A*-C and ethnic composition, and to geographical indicators such as the Index of Multiple Deprivation (IMD) and classifications of urban and rural areas.

This data linkage enables researchers to draw links between the data collected at all waves of LSYPE and subsequent educational attainment in the same pupils. It also means that characteristics of particular schools or Local Authorities (e.g. ethnic composition or percentage of pupils receiving free school meals) can be investigated in conjunction with individual pupil characteristics. Linkage to the NPD database has enabled a range of other measures to be recorded, and these are listed below:

- *Individual-level data* – including attainment at Key Stages 2, 3 and 4, free school meal eligibility and special educational needs.
- *School-level data* – including OFSTED reports, numbers of pupils, percentage of pupils eligible for free school meals, percentage of pupils with special educational needs, ethnic composition, percentage for whom English is not a first language and school-level attainment at Key Stages 2, 3 and 4.
- *Local Authority-level data* – including percentage of pupils with special educational needs, ethnic composition and LA-level attainment at Key Stages 2, 3 and 4.
- *Geographical data* – including indicator of urban or rural residence, number of schools attended since Year 7, Index of Multiple Deprivation and Government Office Region.

3.4 Sampling and response rates

The original sample drawn for the first wave of the study was of over 33,000 young people in Year 9 attending maintained schools, independent schools and pupil referral units (PRUs) in England in February 2004 (Ward and D'Souza, 2008). The final issued sample was approximately 21,000 young people, all of whom were born between 1st September 1989 and 31st August 1990. The young people sampled for the study were aged 13-14 when the study began, and are now aged 19-20 as the study enters its seventh wave. Cleaned data are currently available for Waves 1-4.

The sample was taken from a school census database supplied by DCSF, and 892 schools were selected in total. Of these, 647 schools (73%) co-operated with the study. School-level non-response was a specific problem with LSYPE, especially in inner London, where only 56% of schools responded, and in the independent sector, where only 57% co-operated with the study. The final issued sample was therefore much smaller than the initial sample drawn from the census database.

3.5 Relevance to the study

The LSYPE represents a particularly valuable new source of information to understand young people's alcohol use and to design policy in response. The main reasons for this are summarised in the points below:

- It focuses on a key age group (age 14-17) where alcohol consumption often starts and is thought to be particularly problematic (see Section 1 above).
- Although the detail gathered about young people's alcohol consumption is limited to the frequency with which the young people drink (there is no information on the amounts consumed, where young people drink or who with), it gathers a great deal of other contextual information on young people's behaviours and attitudes, as well as those of their parents.
- The study is longitudinal, which makes it possible to examine the transitions that young people go through in terms of their drinking behaviour over time, and how these transitions may relate to changes in other behaviours.
- It allows us to look at differences between individuals and between schools in terms of the frequency of alcohol consumption.

3.6 Pupil demographics of LSYPE

As mentioned above, the LSYPE study was designed to be representative of the population of young people in England as a whole. However, in this section we have summarised some key demographics of the LSYPE sample in order to clarify the results of analyses looking at how different factors are associated with alcohol consumption. The following graphs should indicate the proportion of young people referred to when results indicate for example that pupils who have no religion or who have reported being bullied

are more likely to have tried alcohol. The graphs are based on Wave 1 of the LSYPE study, which surveyed the young people at age 14 and in Year 9 of secondary school.

Figure 3.1 shows that the LSYPE cohort is similar in ethnic composition to the population of England as a whole. The vast majority of young people are white (being either white British or of other white origins), with 1-3% coming from each of the other ethnic groups defined by LSYPE.

Table 3.1 Distribution of LSYPE by ethnic group at Wave 1 (age 14)	
Ethnic Group	Percentage in LSYPE
White	86.2
Mixed	2.8
Indian	2.5
Pakistani	2.3
Bangladeshi	0.9
Black Caribbean	1.4
Black African	1.6
Other	2.3

Figure 3.1 shows that the largest group of young people reported that they had no religion (just under 40%). However, just under 30% of young people considered that they had a religion that was either very important or fairly important to them. We found that importance of religion was moderately correlated with ethnic group, but not to the degree that would make it impossible to include both of these factors in our models (see Chapter 5 for more details).

Figure 3.1 Distribution of LSYPE by importance of young person's religion at Wave 1 (age 14)

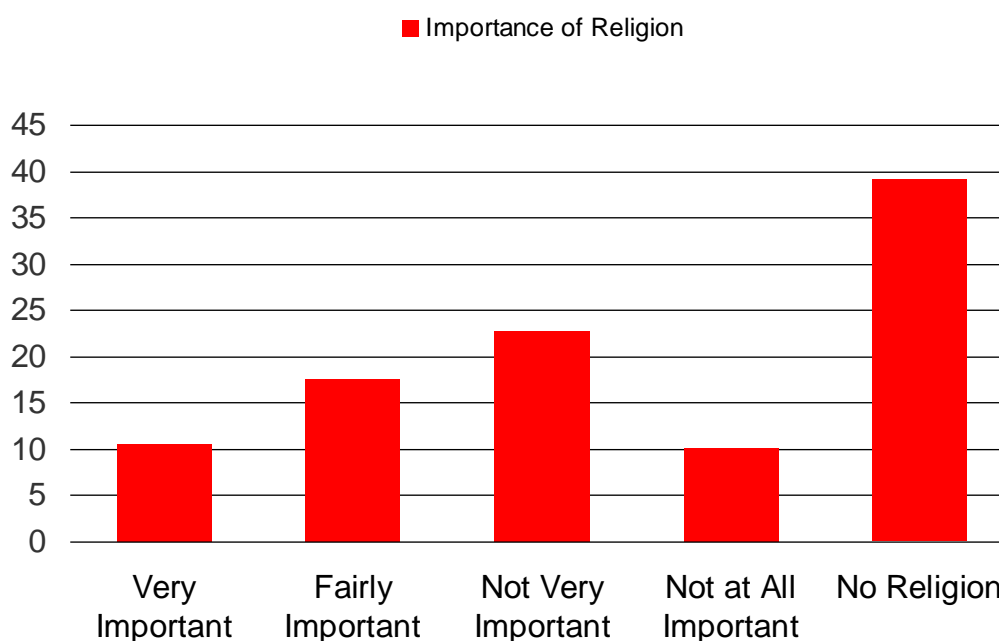


Figure 3.2 shows the proportion of young people who were designated as having either special educational needs (SEN) or a disability (as defined by the young person's main parent). It can be seen that the proportion of young people with SEN is somewhat higher

than those with a disability at just over 20%. The definition of SEN in this case includes any type of special educational needs, such as learning difficulties or dyslexia. The definition of a disability includes any type of disability, whether this does or does not affect school work, and does not conform directly to the officially recognised definition of a disability.

Figure 3.2 Distribution of LSYPE by SEN and disability at Wave 1 (age 14)

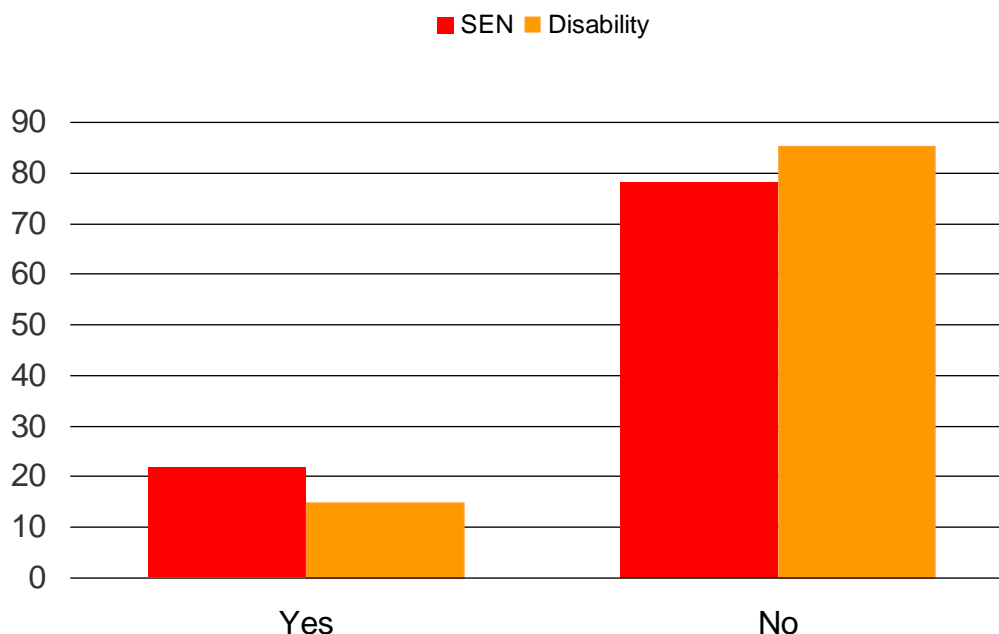


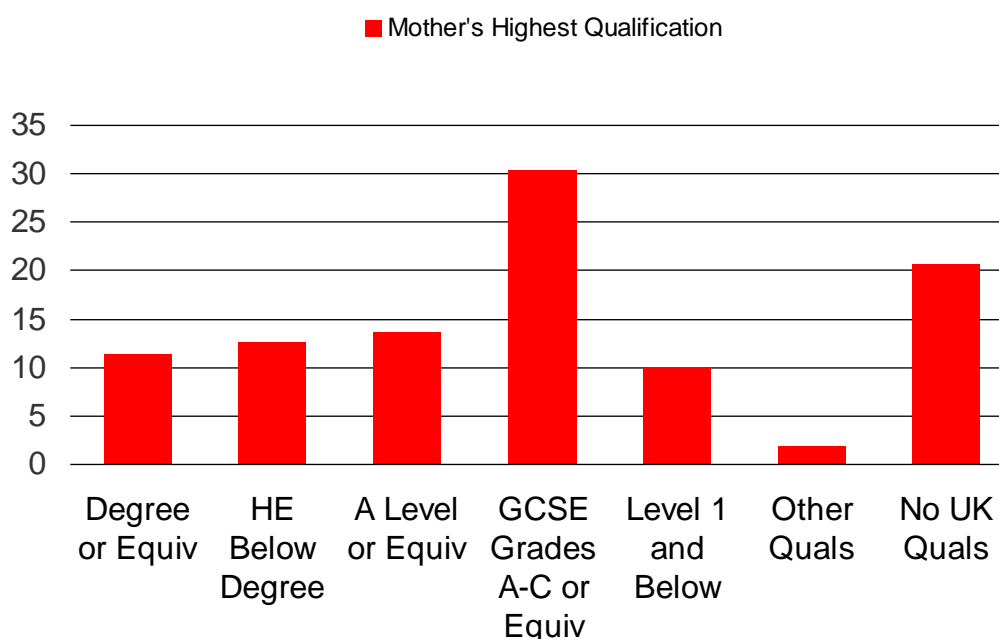
Table 3.2 shows the proportion of young people who reported that they had been bullied in any way in the past 12 months. This figure demonstrates that nearly half of the sample had reported being bullied at the age of 14, and that this would therefore be a widely distributed risk factor if found to be associated with alcohol consumption.

Table 3.2 Distribution of LSYPE by reporting of bullying at Wave 1 (age 14)

Reported bullying	Percentage in LSYPE
Yes	47.5
No	52.5

Figure 3.3 shows the proportion of young people whose mothers had varying degrees of qualifications (a factor that has shown to be particularly strongly associated with pupils' educational attainment). The results demonstrate that the most common level of mother's education is GCSE grades A-C or equivalent, but that over 20% of pupils had mothers with no UK qualifications.

Figure 3.3 Distribution of LSYPE by mother's highest qualification at Wave 1 (age 14)



Finally, Table 3.3 shows that just over a quarter of the young people in LSYPE came from a family where there were one or no biological parents in the household.

Table 3.3 Distribution of LSYPE by family type at Wave 1 (age 14)

Reported bullying	Percentage in LSYPE
Yes	74.8
No	25.2

These graphs are a guide to the general composition of the LSYPE cohort, although there are many other factors that have been measured which are not presented here. The next section will describe how these factors will be analysed in relation to alcohol consumption.

3.7 Limitations to the study

LSYPE contains no information on the quantities or types of alcohol drunk by the young people (or reasons why they might drink and in what contexts), which makes it very difficult to distinguish between particularly problematic drinking such as binge drinking among peers and a having a glass of wine with dinner under the supervision of a parent or other responsible adult. The data also provide no information on health outcomes that might be related to drinking. However, the major advantages of LSYPE lie in the wealth of background data collected on the participants, and the ability to follow them over time. These additions therefore enable us to clarify a number of issues related to the characteristics of young people who drink and the direction of causality between drinking and other behaviours or outcomes.

4 Analysis Strategy

4.1 Variables included in analyses

The following lists of variables to be included in the analyses contain variables taken from Waves 1 to 4 of LSYPE, corresponding to young people aged 14-17. They also contain variables taken from the NPD at the pupil and school levels. The lists include variables that were selected for inclusion in the analytical models but which were not subsequently found to be significant predictors of attainment and which were therefore not included in the final models. Many of the listed variables have been identified as being linked to risky behaviours in the recent NatCen study for DCSF, and others have been found to be linked to alcohol consumption by other studies including the 2008 Survey of Smoking, Drinking and Drug Use among Young People in England (SDD).

They have been divided into categories, which are summarised below:

Measures of alcohol consumption

These are the main outcomes used for most of the models in the analyses, and are questions directly asked of the young people in LSYPE. We looked at whether a range of other factors was associated with either of these two variables.

Table 4.1 Measures of alcohol consumption

Variable Label	Source	Waves
Ever had an alcoholic drink	LSYPE	1, 2, 3, 4
Frequency of having alcoholic drink in last 12 months	LSYPE	1, 2, 3, 4

Background characteristics

These are included in the models as individual-level covariates to determine what background characteristics of the young person might be associated with either of the two alcohol consumption variables listed above.

Table 4.2 Background characteristics of young person

Variable Label	Source	Waves
Young person's ethnic group (grouped)	LSYPE	1, 2, 3
Importance of religion to young person	LSYPE	1, 2, 3
Whether young person has been bullied in any way in the last 12 months	LSYPE	1, 2, 3
Gender	LSYPE	1, 2, 3, 4
Highest qualification held by mother (grouped)	LSYPE	1, 2, 3, 4
Parental NS-SEC socio-economic class (derived from father, or mother if father not present)	NatCen*	1, 2, 3, 4
Family type (two parents, single parent or no parents)	LSYPE	1, 2, 3, 4
Housing tenure	LSYPE	1, 2, 3, 4
Whether pupil is identified as having a special educational need (SEN) of any type	LSYPE	1, 2, 3
Whether young person has a disability/long term illness or health problem	LSYPE	1, 2, 3

*This variable was derived for a previous DCSF study and will be added to the publicly available LSYPE dataset at <http://www.data-archive.ac.uk/>

Geographical variables

These are included in the same models as the background characteristics listed above, and provide an assessment of whether characteristics of the area a young person lives in are also related to alcohol consumption. All these variables were obtained from the NPD.

Table 4.3 Geographical variables

Variable	Source	Waves
Urban/rural indicator (recoded into binary variable by NatCen)	NPD	1, 2, 3, 4
Index of Multiple Deprivation	NPD	1, 2, 3, 4
Government Office Region	NPD	1, 2, 3, 4

School-level characteristics

These are included in the models as school-level covariates, and provide an assessment of whether characteristics of the school a young person attends are related to alcohol consumption. All these variables were again obtained from the NPD.

Table 4.4 School-level characteristics

Variable Label	Source	Waves
Sex of school (mixed, girls or boys)	NPD	1, 2, 3, 4
Pupil teacher ratio (for relevant year)	NPD	1, 2, 3, 4
Percentage of pupils known to be eligible for free school meals (for relevant year)	NPD	1, 2, 3, 4
Percentage of pupils with a special educational need (SEN) (for relevant year)	NPD	1, 2, 3, 4
Percentage of white British pupils (for relevant year)	NPD	1, 2, 3, 4

Other behaviours

These are included in later models as individual-level covariates to explore what other behaviours are related to alcohol consumption after controlling for the background characteristics of the young person. They are also included in the causal models looking at pathways between behaviours.

Table 4.5 Other behaviours

Variable Label	Source	Waves
Whether young person has been temporarily suspended or excluded from school	LSYPE	1, 2, 3
Whether young person has been expelled or permanently excluded from school	LSYPE	1, 2, 3
Whether young person has played truant in last 12 months	LSYPE	1, 2, 3
Whether young person ever smokes cigarettes	LSYPE	1, 2, 3
Whether young person has tried cannabis	LSYPE	1, 2, 3
Whether young person has graffitied on walls	LSYPE	1, 2, 3
Whether young person has vandalised public property	LSYPE	1, 2, 3
Whether young person has shoplifted	LSYPE	1, 2, 3
Whether young person has taken part in fighting or public disturbance	LSYPE	1, 2, 3
Whether young person has taken part in sport in last 4 weeks	LSYPE	1, 2, 3
Whether young person has gone to a party, dance, nightclub or disco in last 4 weeks	LSYPE	1, 2, 3
Whether young person has gone to a pub or bar in last 4 weeks	LSYPE	1, 2, 3
Whether young person has played a musical instrument in last 4 weeks	LSYPE	1, 2, 3
Whether young person has gone to a youth club or something like it in last 4 weeks	LSYPE	1, 2, 3
Whether young person has hung around near to home in last 4 weeks	LSYPE	1, 2, 3
Whether young person has hung around in the high street or the town, city centre in last 4 weeks	LSYPE	1, 2, 3
Frequency of young person reading for pleasure	LSYPE	1, 2, 3
Whether young person has done community work in last 4 weeks	LSYPE	1, 2, 3

Attitudes and aspirations

These are included in later models as individual-level covariates to explore what attitudes and aspirations are related to alcohol consumption after controlling for the background characteristics of the young person (see Appendix E for details of how these scores were calculated).

Table 4.6 Attitudes and aspirations

Variable Label	Source	Waves
Young person's attitude to school (derived additive score)	NatCen	1
Parental attitudes to education (derived additive score)	NatCen	1
Parental involvement with school (derived additive score)	NatCen	1
Family cohesion (derived additive score)	NatCen	1

Outcomes

Educational outcomes at Key Stages 3 and 4 are used in the models, corresponding to Waves 1 and 3 of the LSYPE data.

Table 4.7 Outcomes

Variable Name	Source	Waves
Not in education, employment or training (NEET) at age 16/17 (derived from LSYPE)	NatCen	4
GCSE (Key Stage 4) attainment score	NPD	3
Remaining in full-time education at age 16/17 (derived from LSYPE)	NatCen	4

4.2 Stages of analysis

In this section we outline the methods used in the statistical analyses for the study. Different statistical models were used for the various stages due to the nature of the outcome variables being studied. However, all of the methods were applied within a multilevel framework in order to take account of risk factors at the individual level and at the school level. This is a common approach used with educational data, because pupils in school surveys are sampled from within their school. This means that any two pupils from within the same school are likely to be more similar to each other than if they attended different schools, because of shared school-level factors such as teachers, class sizes, catchment area and school management etc. In the case of the current study, the average levels of the outcome variables used (alcohol consumption, other behaviours, likelihood of being NEET, GCSE results and likelihood of remaining in full-time education at Year 12) were allowed to vary randomly between schools, so that each school had its own baseline level that different pupils could vary around. These models reflect the real structure of the data much better than ordinary regression models, and can also help to prevent us from overestimating the differences between individual pupils.

In addition to the multilevel framework, we used multiple regression models in the analyses in this report, in order to explore the relationship between alcohol consumption and a large number of other factors. In multiple regression, we are able to look at the effect of any of a number of factors (e.g. gender or social position) on the likelihood of a young person having tried alcohol (or of them drinking to a particular frequency) after controlling for the effect of other factors. This gives us an estimate of the 'independent' effect of each individual factor on the outcome concerned (i.e. alcohol consumption).

Because the models used were mostly logistic rather than linear regression models, the results take the form of odds ratios (OR). OR describes the ratio of the odds of drinking alcohol (or whatever the outcome is in the model in question) for a particular factor (such as having a disability or being female) to the odds of drinking alcohol for the reference category of the same factor (i.e. not having a disability or being male). An OR greater than 1 indicates an increased chance of the outcome, and an OR less than 1 indicates a decreased chance. An OR of 2 for gender would therefore indicate that girls had twice the odds of drinking compared to boys. The reference categories for all the variables included in these models were selected before the models were run and were chosen on the basis of being the most commonly used or numerous category for each variable. All reference categories are indicated in the results graphs in Section 5 of this report.

1. What are the characteristics of young people who have tried alcohol?

First, we explored the prevalence of drinking in the cohort as a whole and in different subgroups such as males and females and different ethnic groups. These results were then compared with those from the Smoking, Drinking and Drug Use Among Young People in England Survey (SDD) for 2008 in order to determine how representative the LSYPE data were in terms of drinking prevalence and to aid interpretation of the findings. We also compared various characteristics (using the variables identified in Section 4.1) between drinkers and non-drinkers using logistic regression models, and determined

which characteristics had the strongest association with alcohol consumption at different frequencies.

2. What are the characteristics of young people who drink frequently?

We then explored the frequency of young people's alcohol consumption across the four completed waves of LSYPE and sought to identify any patterns. We paid particular attention to drinking thresholds identified as being potentially harmful in the literature on alcohol consumption, such as drinking more than once a week and drinking every day/on most days. We then explored whether young people engaging in these different patterns of drinking had different characteristics, and which characteristics may have been most important for predicting drinking behaviour.

3. What other behaviours, attitudes and aspirations are linked with drinking alcohol?

We examined associations between different frequencies of drinking at each of the four completed waves of the study and other behaviours (risky, social and developmental), as well as with attitudes and aspirations. The list of potential variables included in these analyses can be found in Section 4.1 above. These analyses took the form of logistic regression models as above, and also took into account the background characteristics investigated in Stages 1 and 2.

4. What are the causal relationships between drinking and other behaviours?

We explored the possible causality of changes in drinking behaviour compared to changes in other behaviours using logistic regression models. This was done by exploring predictors in the previous year of uptake or increase in a given behaviour (e.g. drinking, smoking or criminal behaviour), and then looking at the reverse sequence of causality in order to determine which direction shows the stronger relationship. For example, we looked at smoking at age 14 as a predictor of uptake or increase in drinking at age 15, and then we looked at drinking at age 14 as a predictor of uptake or increase in smoking at age 15. Again, these analyses took into account the background characteristics investigated in Stages 1 and 2.

5. How does drinking at age 14 relate to educational outcomes at age 16/17?

Finally, we examined the association between alcohol consumption and other outcomes at the ages of 16 and 17, including whether the young person was not in employment, education or training (NEET) after the end of compulsory schooling, what their score was at GCSE (Key Stage 4) and whether they remained in full time education at the age of 16/17. For these analyses, we again adjusted for background characteristics, but also progressively adjusted for other behaviours, attitudes and aspirations in order to determine what factors were likely to have had the most impact on the outcomes, and whether the effect of drinking might have been mediated through factors such as aspirations or other behaviours.

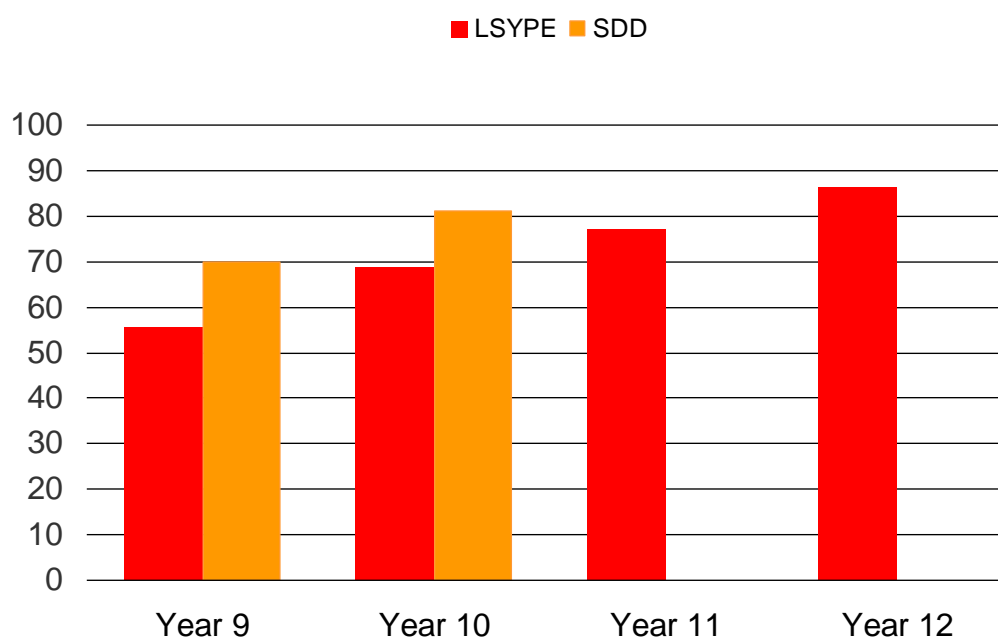
5 Results

This section reports on the main results of the analyses for this project. In the main, only results significant at the 5% level are reported (meaning that these results would have occurred by chance in less than 5% of cases), but we have also drawn attention to some non-significant results where we might have expected to find significant relationships. These instances are clearly indicated in the text.

5.1 How many young people have drunk alcohol, and how often?

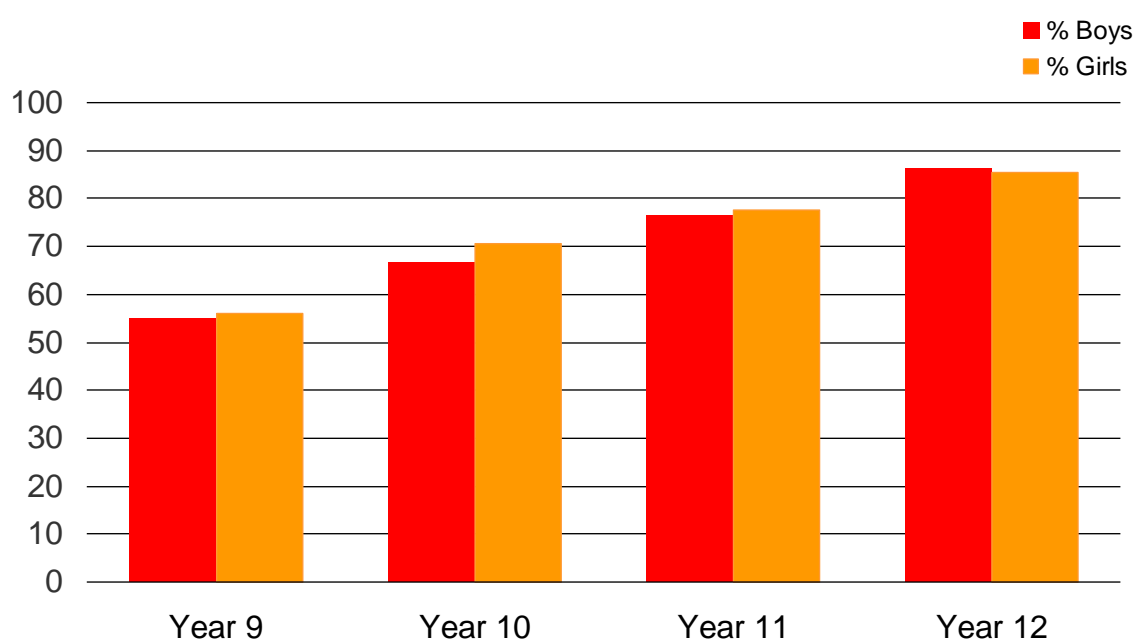
56% of young people had had an alcoholic drink at the age of 14. This had increased to 86% by the age of 17, and showed a steady increase across all four years. These results are summarised in Figure 5.1, in which they are compared with the results of the 2008 Smoking, Drinking and Drug Use Among Young People in England Survey (SDD). The SDD survey only includes young people up to the age of 15 and therefore no comparison can be made with young people in Years 11 and 12, but for the ages for which both surveys have data it can be seen that LSYPE estimates a slightly lower prevalence of drinking among young people than SDD does. Since the question asked in both surveys is identical, this indicates either over-reporting of drinking in SDD, or under-reporting in LSYPE. One possibility leading to under-reporting could be the presence of parents at some of the interviews in LSYPE (in SDD interviews are conducted without anyone else being present). We tested for this possibility by excluding young people whose parent(s) had been present during the interview, and found an increase in the percentage of young people reporting having had an alcoholic drink. It therefore appears that some under-reporting of drinking in LSYPE is likely.

Figure 5.1 Percentage of young people who have had an alcoholic drink



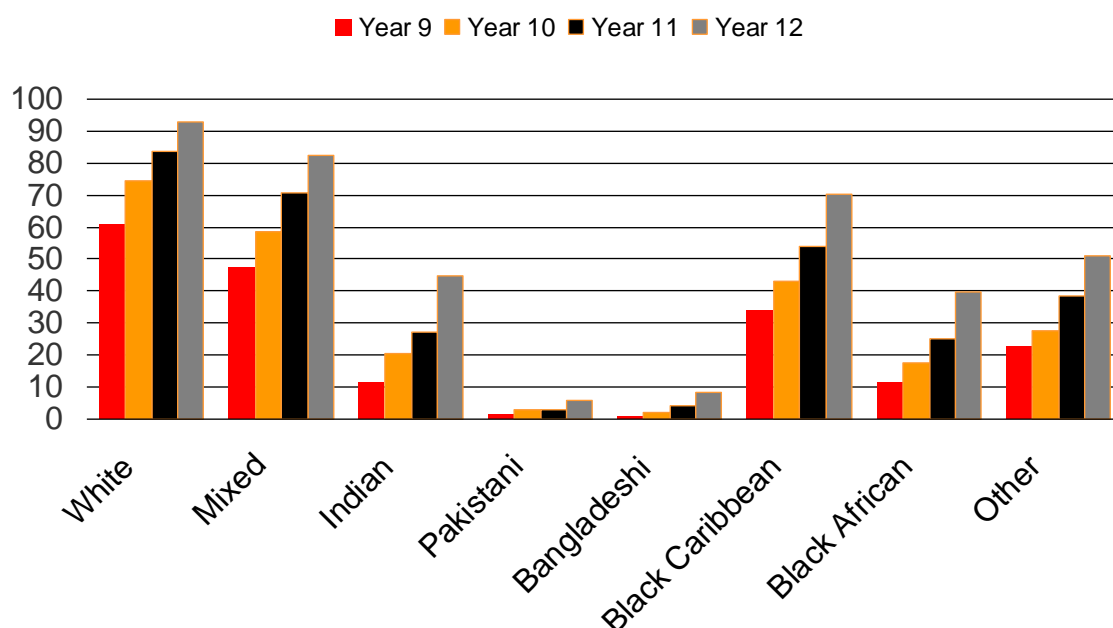
We also explored the prevalence of drinking among boys and girls separately. At age 15 girls were slightly more likely to have had an alcoholic drink than boys (56% compared to 55%). This supports the results of the SDD Survey, which found that girls slightly were more likely to have had an alcoholic drink than boys between the ages of 13 and 15. The difference found in LSYPE persisted until the age of 16, but at 17 boys were slightly more likely to have ever had an alcoholic drink than girls (86% compared to 85%). However, rates of drinking were very similar between boys and girls at all ages. Again, these rates of drinking are slightly lower than those found in the SDD Survey, which is likely to reflect under-reporting in LSYPE as described above. The results are summarised in Figure 5.2 below, but gender differences in drinking behaviour will be examined in more detail in the statistical models described in later sections of this report.

Figure 5.2 Percentage of boys and girls who have had an alcoholic drink



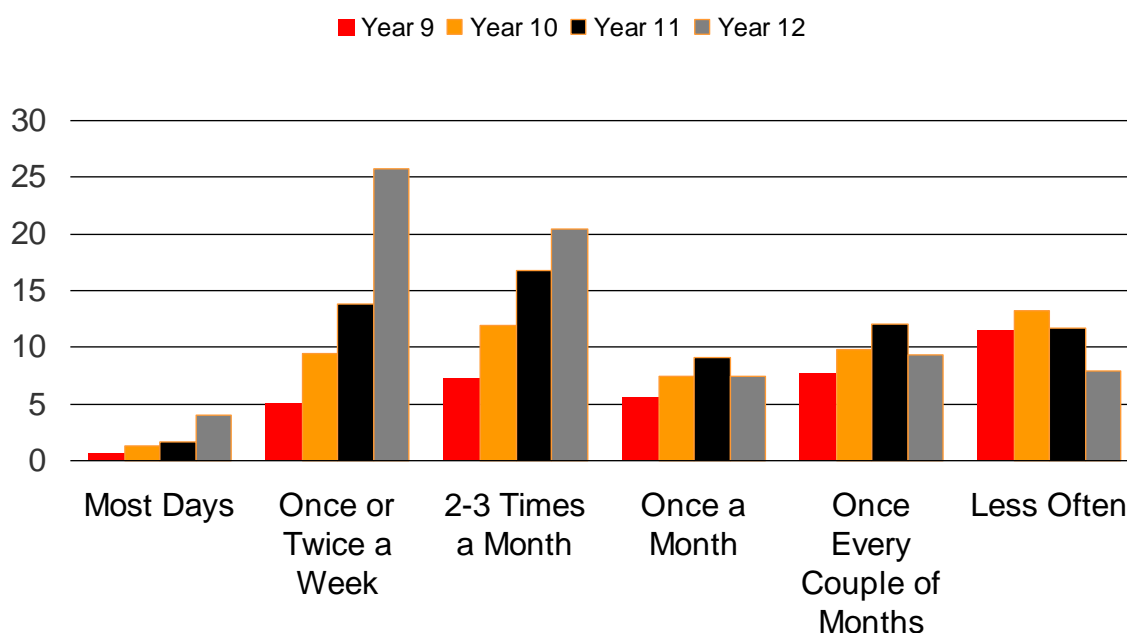
Next, we looked at the prevalence of having had an alcoholic drink among the different ethnic groups. We found that, as expected from previous research into drinking among young people, white young people were the most likely to have had an alcoholic drink at all ages, followed by mixed and Black Caribbean young people. Pakistani and Bangladeshi young people were the least likely to have had an alcoholic drink, but the proportion of all ethnic groups having ever drunk alcohol increased with age to a similar degree. The results of this analysis are shown in Figure 5.3 below.

Figure 5.3 Percentage of ethnic groups who have had an alcoholic drink



Finally, we looked at young people's frequency of drinking. This is measured using a 7-category variable in LSYPE, which distinguishes between drinking on most days, once or twice a week, 2-3 times a month, once a month, once every couple of months, or less often (those not drinking at all are not shown). The results show that the proportion of young people drinking more than once a month gradually increased with age. At ages 14 and 15 (Year 9 and 10) the most common frequency of drinking was less often than every couple of months, but this had increased to 2-3 times a month by Year 11 and then to once or twice a week by Year 12. The proportion of young people drinking more often than once a week also rose steadily with age to around 30% at age 17, although only a small percentage (4%) were drinking on most days even at age 17. The results of this analysis are presented in Figure 5.4 below.

Figure 5.4 Percentage of young people drinking to different frequencies



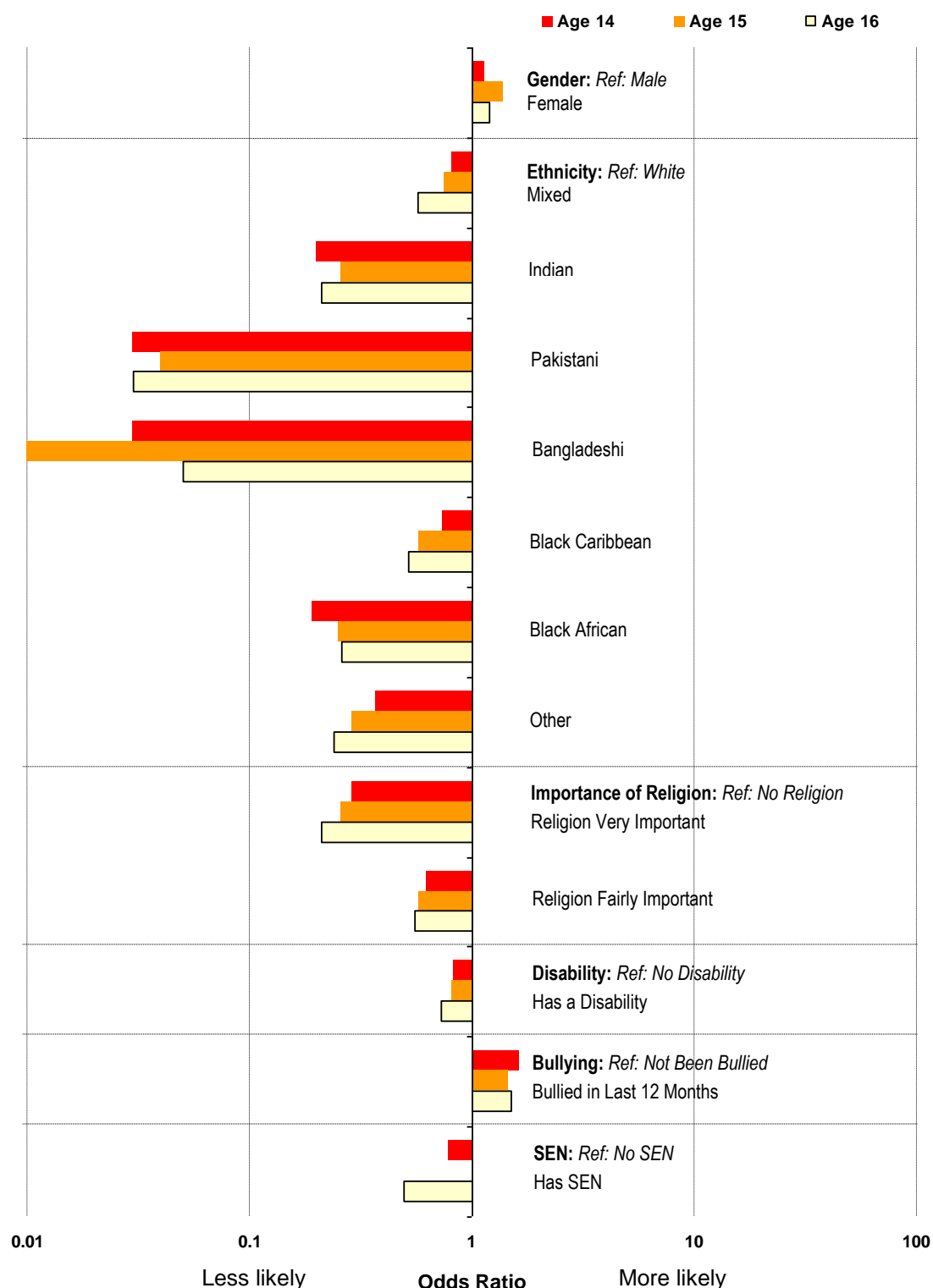
5.2 What are the characteristics of young people who have tried alcohol?

When we looked at the individual characteristics of young people who have had an alcoholic drink, we found that a number of factors were important at all three ages explored, particularly ethnic group and importance of religion. As we have already seen, Pakistani and Bangladeshi young people were by far the least likely to have had a drink, and white young people were the most likely, as shown in Figure 5.3 above. However, we also found that the odds of not drinking among young people whose religion was very important to them were more than three times higher than those who reported not having a religion. Even among those whose religion was fairly important, the odds of not drinking were nearly twice as high. Ethnicity and religion are highly correlated with one another and therefore could not be used as separate variables in our analyses. However, we found that the *importance* of religion was less highly correlated with ethnicity and therefore it was possible to include both variables in the same model. The results seem to suggest a strong independent effect of both on the odds of having tried alcohol among young people, so that the importance of a young person's religion was not merely correlated with their chances of trying alcohol because they were more likely to also be from a minority ethnic group.

These were the two most important individual characteristics, but we also found that young people who had been bullied had around 1½ times the odds of having had a drink (supporting the results of an earlier NatCen study which found that being bullied was an important characteristic of young people taking part in a number of risky behaviours), and girls were more likely to have had a drink than boys at all ages. Young people with SEN or a disability were less likely to have had a drink.

Most of these relationships strengthened with age, so that young people in the high risk groups had an increasing risk of drinking over time and those in the low risk groups were even less likely to have had a drink over time when compared to the reference group. However, there were a couple of exceptions to this: gender differences had declined by Year 11, and the increased risk for those who had been bullied also appeared to decrease from Year 9 to Year 10. The results of these analyses can be found in Figure 5.5 below. Only significant differences are presented – in those cases where there was a significant difference for one or two years of the study, these effects are shown and the years where the relationship was not significant have been omitted.

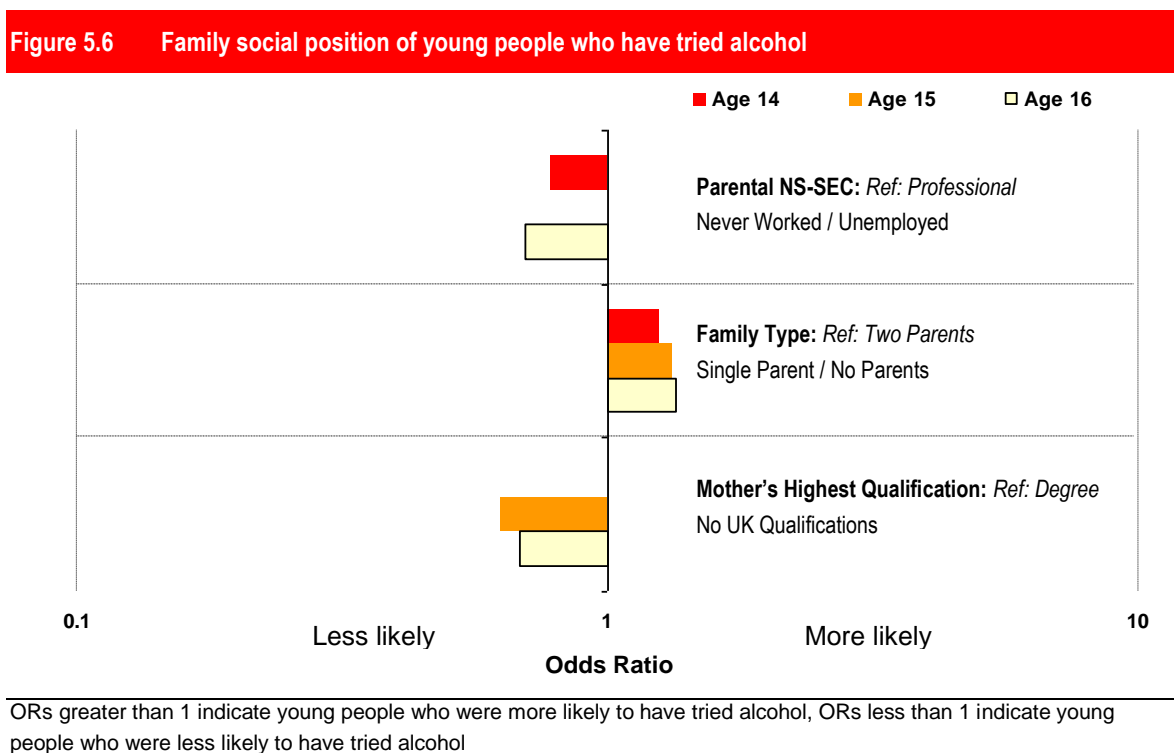
Figure 5.5 Socio-demographic characteristics of young people who have tried alcohol



ORs greater than 1 indicate young people who were more likely to have tried alcohol, ORs less than 1 indicate young people who were less likely to have tried alcohol

The relationship between family social position and drinking was much weaker when compared to the relationships found with individual characteristics (all subsequent analyses in this section are additionally adjusted for individual characteristics). Young people from single parent families or families where neither natural parent were present, were slightly more likely to have had an alcoholic drink at all ages, and those with

unemployed parents were slightly less likely to have had a drink. From the age of 15, young people whose mothers had no qualifications were also less likely to have tried alcohol, but overall there was no clear pattern relating social class to drinking despite these slightly lower risks for the most disadvantaged social class groups (other categories of parental NS-SEC and mother's highest qualification showed no significant relationship with drinking). This finding is slightly counter-intuitive, but it is possible that alcohol is less freely available for young people living in disadvantaged homes, which might explain the lowered risk of drinking among young people whose parents are unemployed. The results of these analyses are presented in Figure 5.6 below.

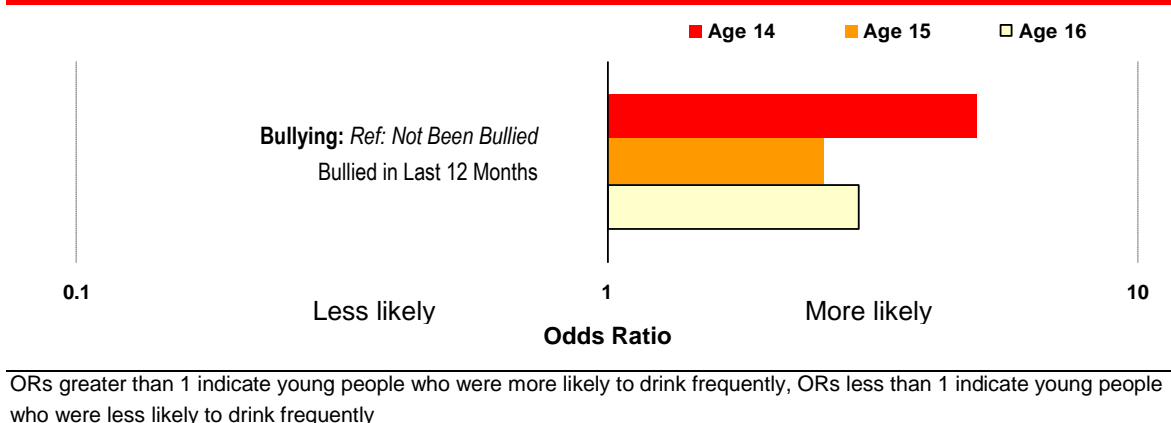


We also found little relationship between area and school-level factors (including the proportion of white pupils, proportion of pupils with special educational needs, proportion of pupils eligible for free school meals and the pupil to teacher ratio in the school) and drinking (results not shown). There was some evidence that pupils attending schools with more pupils eligible for free school meals (FSM) were less likely to have drunk alcohol (which supports some of the results relating to individual social position above), but the relationship did not persist across Years 9 to 12. At ages 15 and 16, young people were more likely to have tried alcohol if they attended a school with more white pupils regardless of their own ethnic grouping. Again, this supports results showing that individual white young people were more likely to have drunk alcohol, but is also suggestive of peer group behaviour. Similarly, at age 16 girls were more likely to have drunk alcohol if they attended an all-girls compared to a mixed school. However, these relationships were not as strong as those found with the individual characteristics of the young people and are therefore likely to be less important in predicting drinking behaviour.

5.3 What are the characteristics of young people who drink frequently?

Young people who drank frequently (more than once a week) had very similar characteristics to those who had tried alcohol in general. They were more likely to be white, more likely to have no religion or a religion that was not important to them, and were more likely to have experienced any type of bullying. However, bullying was much more strongly associated with drinking on most days than with drinking once or twice a week or merely having had a drink at all. Those who had been bullied in the last year had between 2½ and 5 times the odds of drinking on most days compared to those who had not been bullied. The relationship was strongest at age 14 and then appeared to weaken slightly with age, but was still a very important predictor of drinking frequently. A summary of the results for bullying (adjusted for all previously explored factors) can be found in Figure 5.7 below.

Figure 5.7 Experience of bullying and drinking frequently (more than once a week) among young people



5.4 What other behaviours, attitudes and aspirations are linked with drinking alcohol?

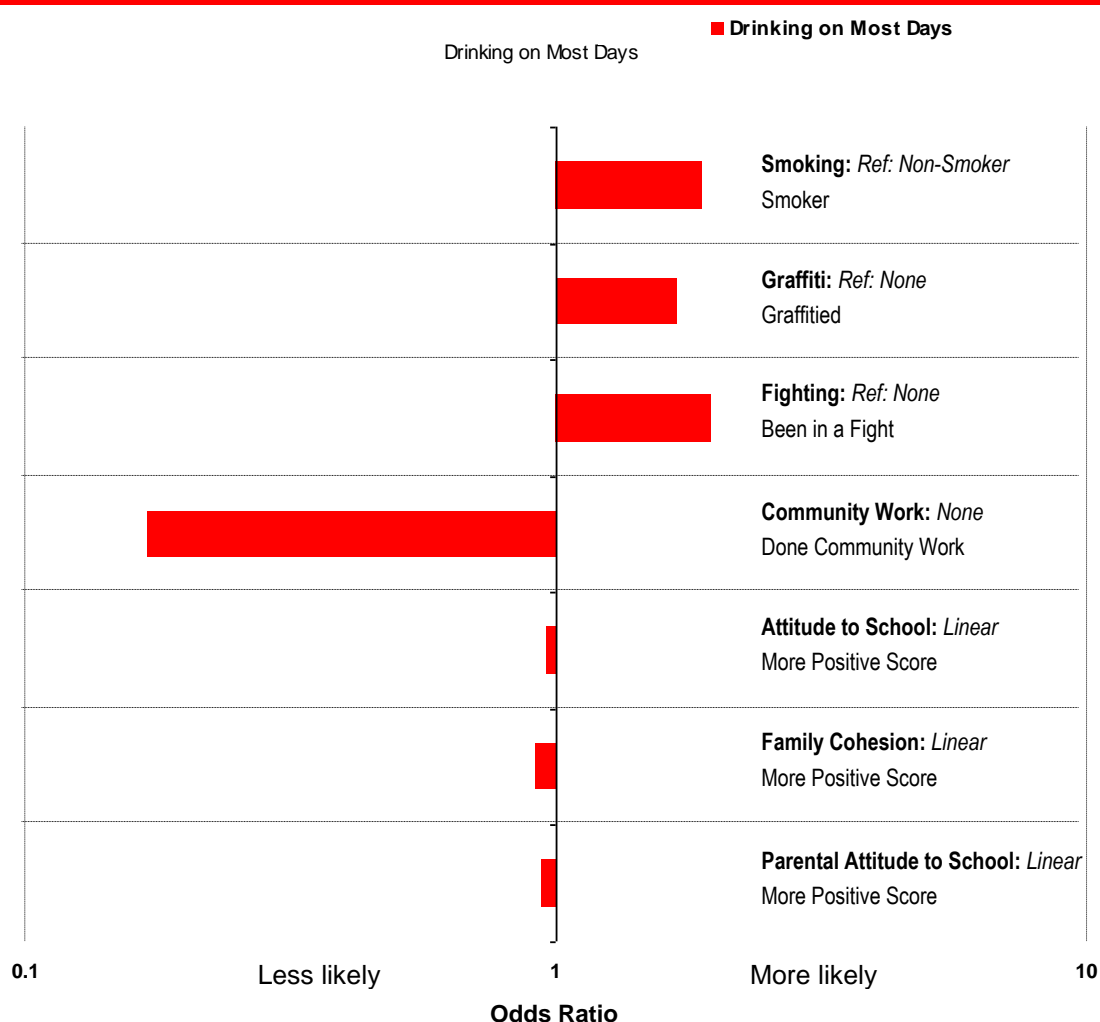
In this section, we explored the relationship between drinking alcohol to varying frequencies and other behaviours. Not all of these behaviours were measured at all waves of the study, therefore these analyses are restricted to Wave 1 when the young people were aged 14. As a result the analysis focuses on relationships with drinking at a relatively early age, and it is possible that these relationships may have changed as the young people grew older and more of them started to drink more frequently. The results show that virtually all the other behaviours examined (including smoking, vandalism, fighting etc.) were associated with drinking alcohol. After adjustment for the young person's (and their parents') attitudes and aspirations most associations remained statistically significant, but the size of the relationships was slightly reduced. Activities which might be thought to help young people's development, such as reading for pleasure and attending youth clubs, were neither positively nor negatively associated with drinking.

Drinking on most days

Young people who drank on most days were more likely than other young people to smoke cigarettes, to have graffitied and to have been in a fight, even after adjustment for

their attitudes and aspirations. They were also much less likely to have done any community work. Among this group, attitudes toward school were more negative, family cohesion scores were lower and parental attitudes toward education were also more negative when compared to other young people. However, we found no relationship between drinking on most days and social activities such as going to parties or hanging around in town or near home. A summary of these results can be found in Figure 5.8 below. The relationships with attitudes and aspirations appear small in the figures below, but as these factors are measured on a continuous scale the bar represents the decrease in risk relating to just a 1-point increase in the scale (as opposed to the change in risk relating to, for example, smoking compared to not smoking). This means that a larger increase in ‘attitudes’ (for example a 5-point change on the attitude scale) would actually add up to a much larger reduction in the risk of drinking on most days.

Figure 5.8 Relationships between drinking on most days and other behaviours



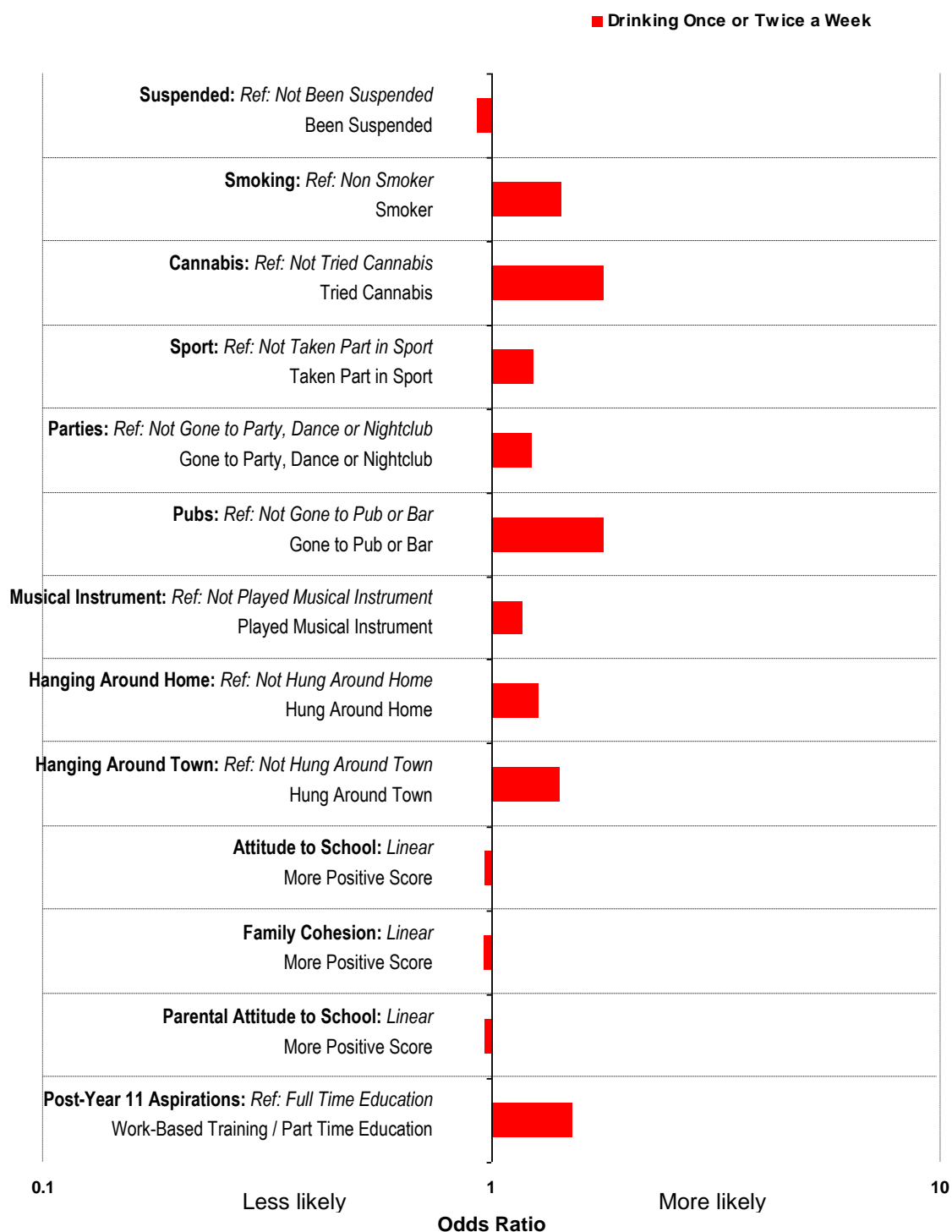
ORs greater than 1 indicate young people who were more likely to drink on most days, ORs less than 1 indicate young people who were less likely to drink on most days

Drinking once or twice a week

Relationships with other behaviours among young people who drank once or twice a week were slightly different when compared to those who drank on most days. Similarly to those who drank on most days, they were more likely to smoke and had more negative attitudes and aspirations, but they were also more likely to take part in socialising activities with

other young people (including going to pubs and parties, hanging around in town or near their homes and playing sport). They also had nearly twice the odds of having tried cannabis compared to other young people, whereas this relationship among those who drank on most days was not statistically significant. A summary of these results can be found in Figure 5.9 below.

Figure 5.9 Relationships between drinking once or twice a week and other behaviours



ORs greater than 1 indicate young people who were more likely to drink once or twice a week, ORs less than 1 indicate young people who were less likely to drink once or twice a week

Other drinking frequencies

We found that young people who drank 2-3 times a month tended to engage in very similar behaviours to those who drank once or twice a week, but in addition they were also more likely to have vandalised property and to have been in a fight. When we explored young people who did not drink at all at the age of 14, we found that they were much less likely to engage in any of the socialising or risky behaviours (including smoking, trying cannabis, playing sport, going to parties or pubs, hanging around in town or near their homes or playing a musical instrument). They also tended to have more positive attitudes to education (as did their parents) and higher aspirations. However, these young people were no more likely than others to have taken part in community work or to have attended a youth club (results not shown).

Summary

It appears that at the age of 14, socialising and risky behaviours (such as going to parties or pubs or hanging around in town or near their homes) tend to be quite strongly associated with drinking between two times a month and two times a week. However, these behaviours (with the exception of fighting, smoking and graffitiing) tend not to be associated with drinking on most days. This may indicate that young people who drink on most days from a relatively early age form a distinct group who show different patterns of behaviour when compared to those young people who drink less often.

The small group of young people who drink on most days may not be more likely than other young people to take part in socialising behaviours (unlike those who drink less frequently), but our results show that they are more likely to be bullied and to be involved in fighting. This indicates that these young people are likely to experience problems related to behaviour and violence, and that the consequences for them in terms of educational and adult outcomes may be more severe than those for young people who drink less frequently. This theory will be explored further in the following section.

Relationships reported here largely support the results of an earlier NatCen study (*Risky Behaviour and Social Activities*, Cebulla and Tomaszewski, 2009) which explored a range of risky behaviours using LSYPE data. Cebulla and Tomaszewski found that the young people's attitudes to school, their relationships with their parents (examined as family cohesion in the present study), and their post-16 aspirations were all important correlates of engaging in risky behaviours in general. The same also seems to hold true specifically for drinking, although ethnic group and importance of religion appear to be more important with regard to alcohol consumption than other risky behaviours. Both studies found that social position and school factors were not as important as might have been expected in explaining young people's alcohol consumption.

5.5 What are the causal relationships between drinking and other behaviours?

This section aims to clarify the direction of causality between drinking and other behaviours, as opposed to the previous sections which have only been able to identify

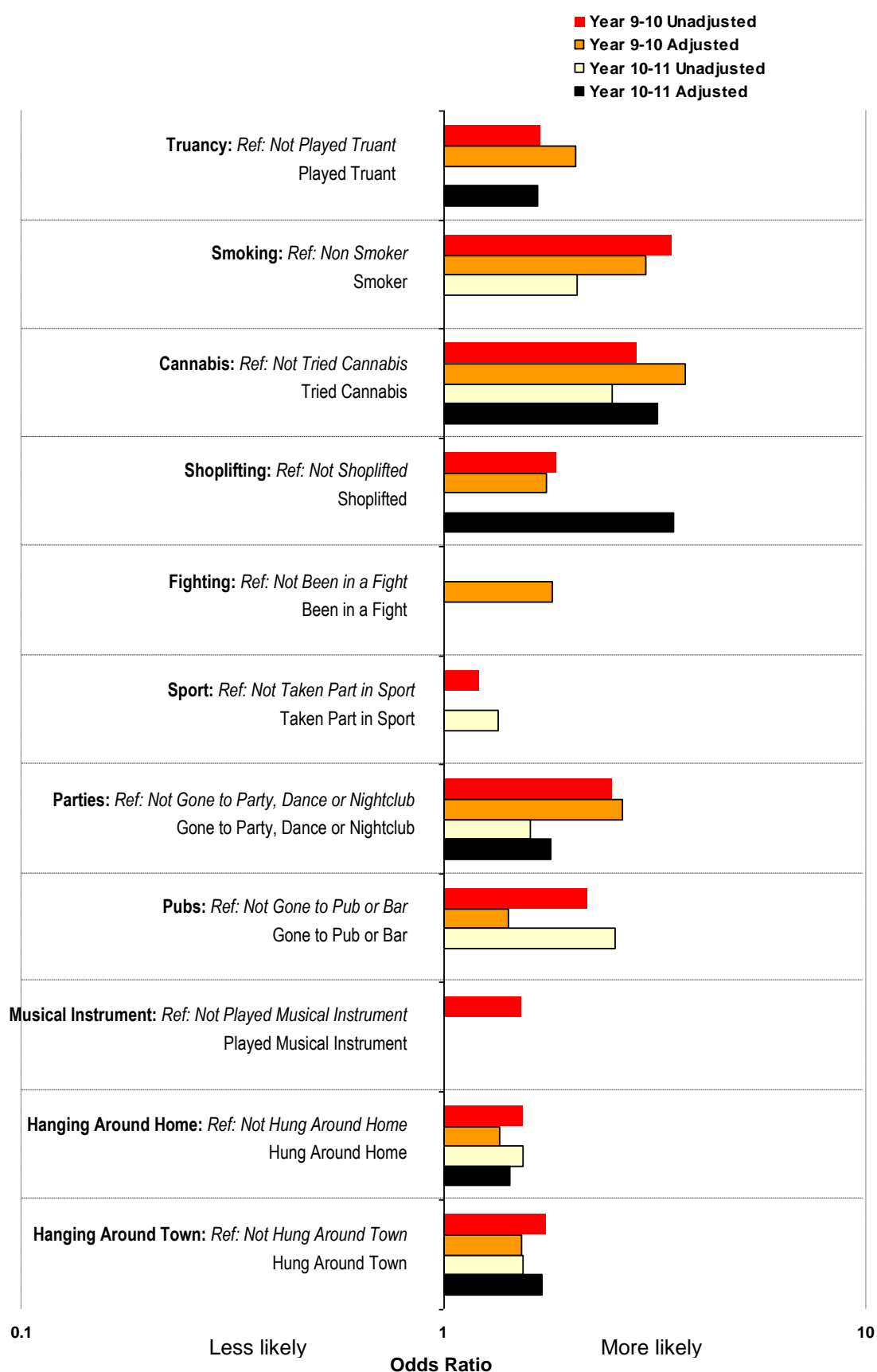
associations between the different behaviours explored. The analyses explore whether drinking tends to lead to the uptake (or increase in prevalence) of other risky behaviours or, conversely, whether engaging in these other behaviours is more likely to lead to uptake (or increase in the frequency) of drinking. It may also be the case that these relationships operate in both directions, in which case there may be a cycle of risky behaviours in operation.

Other behaviours leading to alcohol consumption

To explore these causal relationships, first we looked at other behaviours that might be predictive of young people trying alcohol either at age 15 or at age 16 if they had not previously had an alcoholic drink. In principle, we examined whether young people who did engage in these behaviours were more likely to report trying alcohol when interviewed a year later than other young people who did not engage in these behaviours. We looked at this relationship both before and after adjustment for a number of background factors described earlier in the study (see Table 4.1) in order to determine whether any of these factors might have been partially or completely responsible for the uptake of drinking.

We found that a number of other behaviours were predictive of trying alcohol among the subgroup of young people who had not previously had a drink, which was around 45% of young people at age 14 and around 30% at age 15. Smoking and having tried cannabis were particularly predictive of young people subsequently trying alcohol, although the association with smoking weakened as the young people grew older (the results of these analyses can be found in Figure 5.10 below). Other behaviours that predicted young people trying alcohol included playing truant, shoplifting, going to parties or pubs and hanging around near home or in town, whereas other risky behaviours such as graffitiing, vandalism and fighting did not seem to affect a young person's chances of trying alcohol in the following year. These results indicate that participating in other risky behaviours can make young people more likely to start drinking. However, they relate to the group of young people who had not already tried alcohol by the age of 14 or 15, and therefore may not indicate that other risky behaviours were likely to increase the propensity to drink among those young people who had already tried alcohol. This is an issue which is examined below in Figure 5.10.

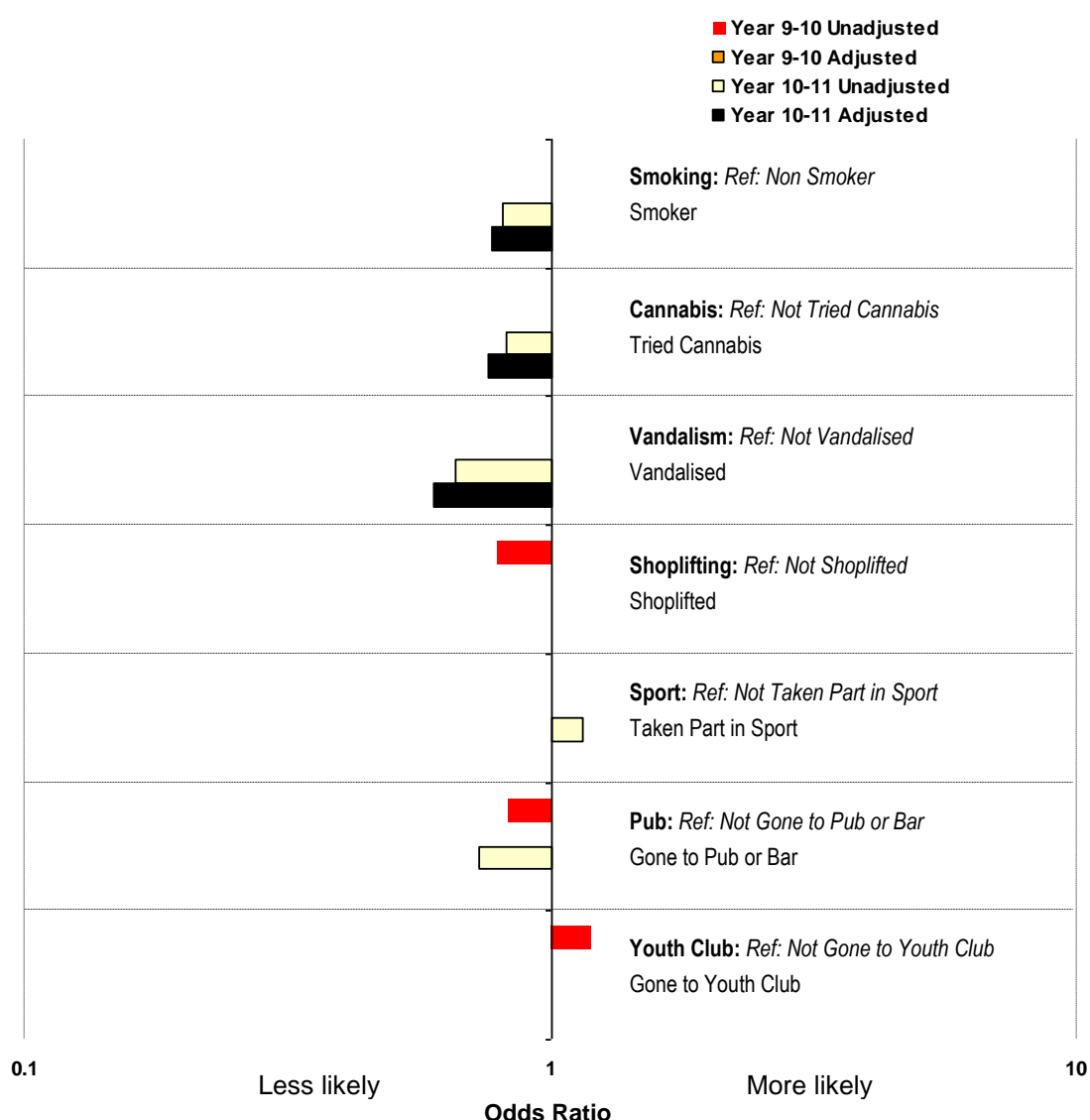
Figure 5.10 Predictors of starting drinking at age 15 or 16 (with and without adjustment for other factors)



ORs greater than 1 indicate young people who were more likely to have started drinking, ORs less than 1 indicate young people who were less likely to have started drinking

We also explored the influence of other behaviours that might be predictive of young people increasing their *frequency* of drinking at the same ages having already previously tried alcohol (see Figure 5.11 below). These results, however, were very different, and showed that young people who took part in most socialising and risky behaviours were actually slightly less likely to increase their frequency of drinking in the following year than other young people. The exceptions to this were attending a youth club at age 14 (which led to a slightly increased risk of more frequent drinking at age 15) and playing sport at age 15 (which led to a slightly increased risk of more frequent drinking at age 16). However, neither of these relationships remained statistically significant once we adjusted for other background factors. These results seem to indicate that taking part in risky or socialising behaviours does not increase the risk of young people drinking more frequently, but that young people who do engage in these behaviours are more likely to try alcohol if they had not previously done so at an earlier age. It is also possible that other behaviours might lead to an increase in the *amount* these young people are drinking, as we were not able to test this using LSYPE data.

Figure 5.11 Predictors of increased frequency of drinking at age 15 or 16 (with and without adjustment for other factors)



ORs greater than 1 indicate young people who were more likely to have started drinking, ORs less than 1 indicate young people who were less likely to have started drinking

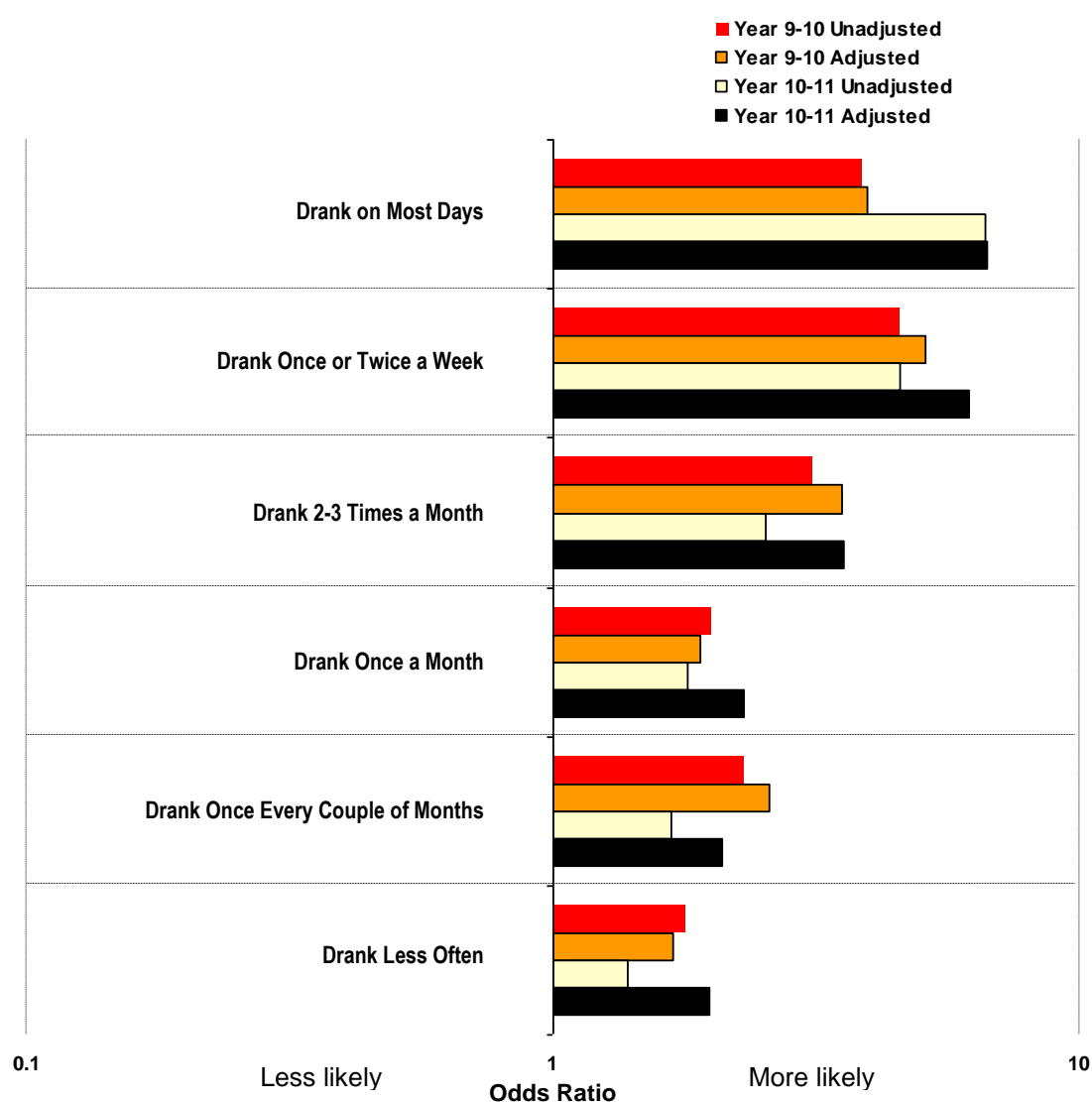
Alcohol consumption leading to other behaviours

We also explored the same relationships in reverse, looking at whether the frequency of young people's alcohol consumption (compared to a reference category of those who did not drink at all) might be predictive of uptake or increase in prevalence of other behaviours in the following year. To do this, we grouped other behaviours into meaningful categories rather than looking at the long list of socialising and risky behaviours we had previously studied. Again, we explored relationships between drinking at age 14 and the uptake or increased prevalence of other behaviours at 15, as well as drinking at age 15 and the uptake or increased prevalence of other behaviours at age 16, both before and after adjustment for background factors (these background factors are listed in Table 4.1).

First we looked at uptake of or increase in criminal behaviour (comprised of vandalism, graffiti and shoplifting), and found that drinking at all frequencies was strongly associated with an increased incidence of criminal behaviour over the following year, both before and after adjustment for background factors (see Figure 5.12 below). The relationship was particularly strong among young people who drank on most days, so that at ages 14-15 these young people had around 4 times the odds of increasing their criminal behaviour and at ages 15-16 they had nearly 7 times the odds. The strength of the relationship decreased among young people who drank less frequently, but was statistically significant for all frequencies of drinking.

These results show that drinking is strongly predictive of increased criminal behaviour, whereas the analyses shown above indicated that only shoplifting was a predictor of trying alcohol for the first time, and none of the criminal behaviours we measured was predictive of drinking with increased frequency. It therefore appears that drinking is more likely to lead to criminal behaviour than the reverse, and that it is strongly related to increased engagement in these behaviours from the ages of 14-15, especially among young people who drink frequently.

Figure 5.12 Alcohol consumption as a predictor of increased criminal behaviour (with and without adjustment for other factors)



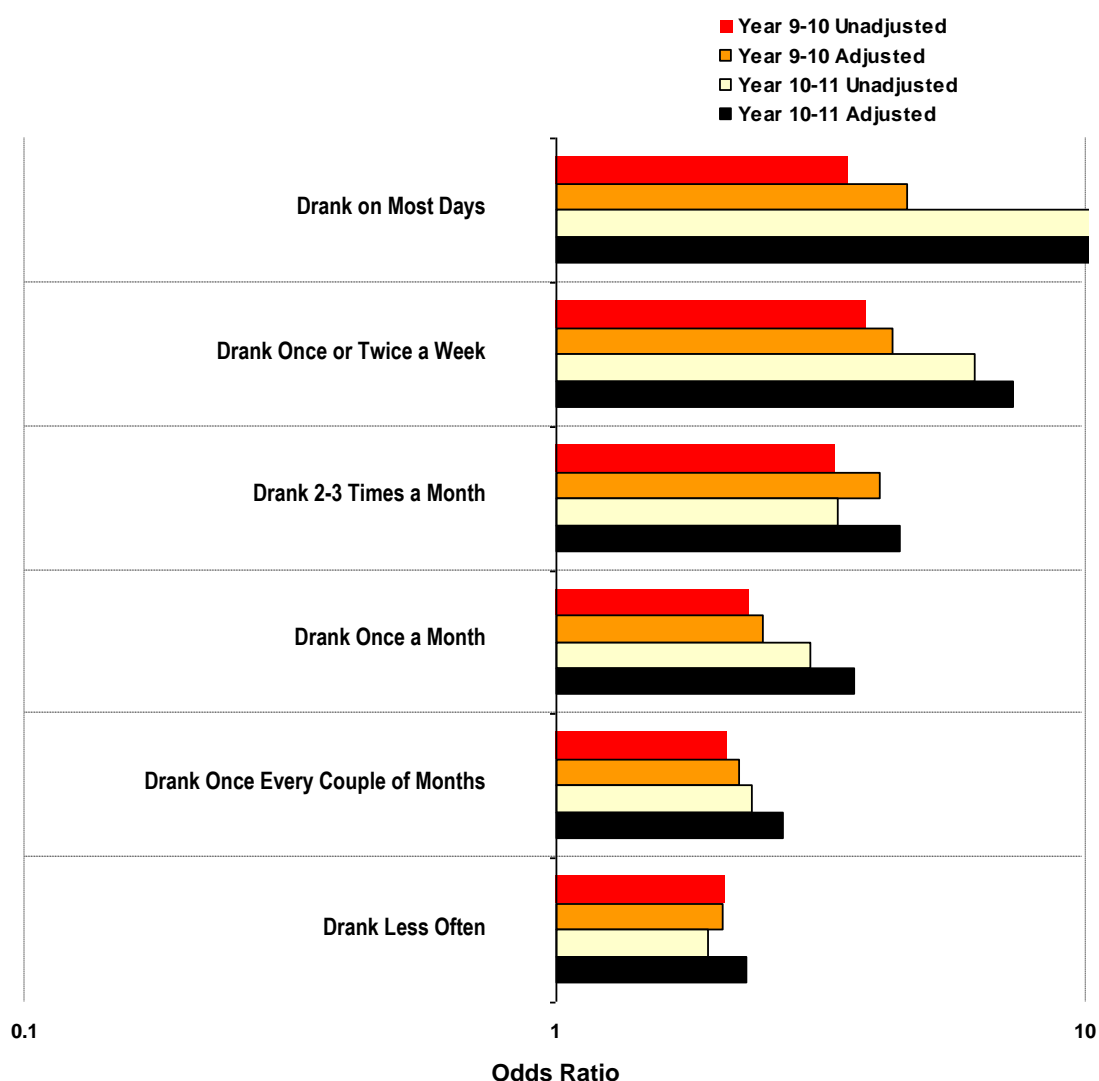
ORs greater than 1 indicate young people who were more likely to have increased their criminal behaviour, ORs less than 1 indicate young people who were less likely to have increased their criminal behaviour

Next we examined whether drinking led to an increase in truancy. The results were very similar to the findings relating to crime, and show that between ages 14 and 15, drinking at all frequencies was followed by an increase in truancy (see Figure 5.13 below). Again, this was especially true for young people who drank on most days. At ages 14-15 these young people had over 4 times the odds compared to other young people of increasing their truancy, and at ages 15-16 this had increased to over 10 times the odds. As with criminal behaviour, the strength of the relationship decreased for each lower frequency of drinking, but was statistically significant for all frequencies. There was also evidence that the strength of the relationship between drinking and truancy increased with age, so that young people who drank at the age of 15 were more likely to increase their truancy in the following year than those who drank at the age of 14.

The analyses above show that truancy is a predictor of trying alcohol among young people who had not previously tried it at ages 14 and 15, but not a predictor of increasing

frequency of drinking. There may be a reciprocal relationship between drinking and truancy, where engaging in drinking may lead some young people to skip school, but also it is just as likely that skipping school allows young people more unsupervised time to drink alcohol should they wish to. However, drinking alcohol was a stronger predictor of truancy than truancy was of drinking alcohol (especially for young people who drank frequently), indicating that alcohol consumption may be the more important driver in this relationship.

Figure 5.13 Alcohol consumption as a predictor of increased truancy (with and without adjustment for other factors)



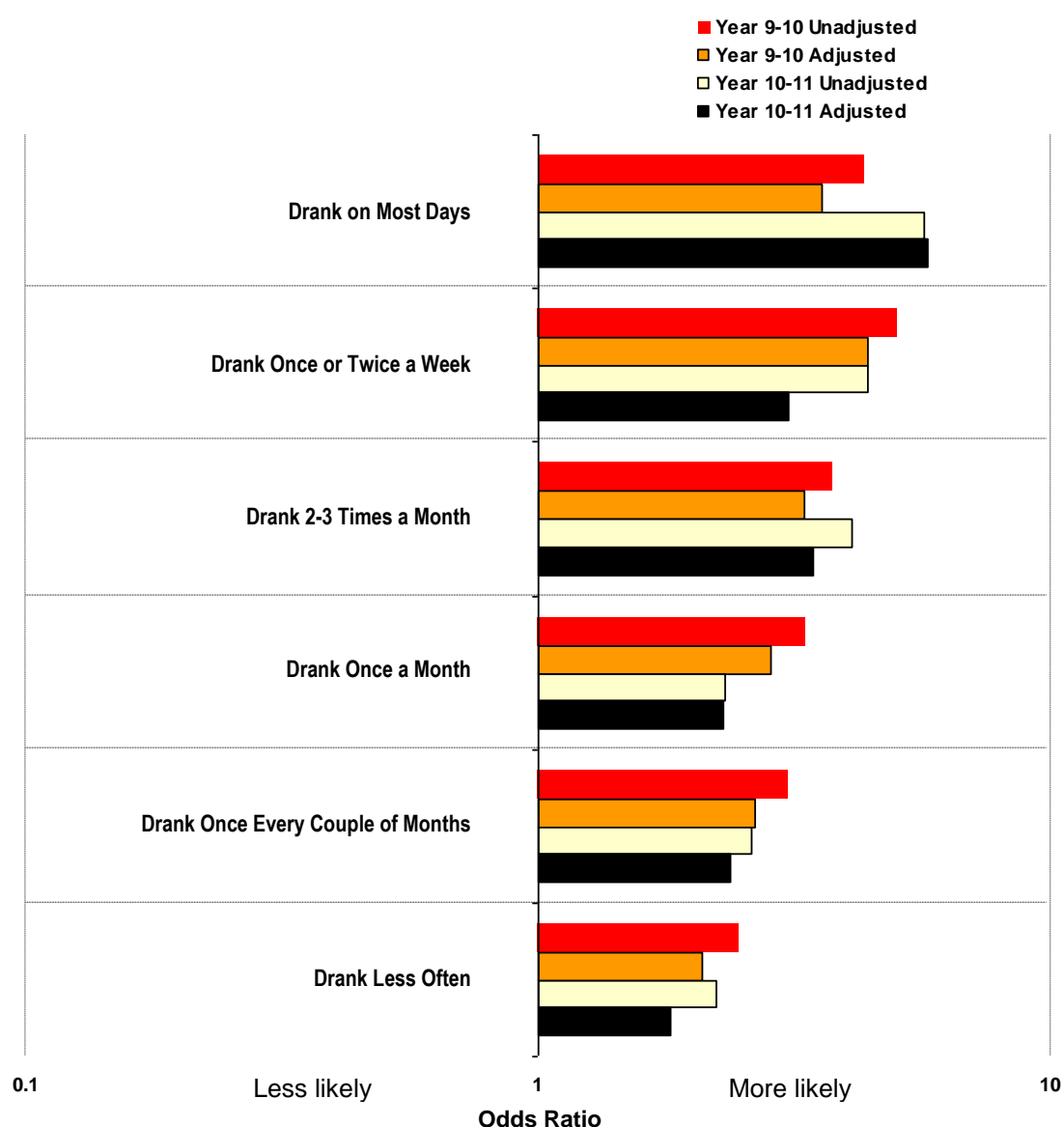
ORs greater than 1 indicate young people who were more likely to have increased their truancy, ORs less than 1 indicate young people who were less likely to have increased their truancy

Next, we explored whether drinking led to young people smoking cigarettes, and again we found a strong relationship which increased with increasing frequency of drinking (see Figure 5.14 below). At ages 14-15, young people who drank on most days had 3-4 times the odds compared to young people who did not drink of taking up smoking, and at ages 15-16 this had increased to 6 times the odds. However, for young people who drank less frequently this relationship appeared to decrease a little in strength with increasing age, so

that young people who drank only rarely were only slightly more likely to take up smoking than those who did not drink at all at the age of 15-16.

We found smoking to be a strong predictor of trying alcohol among young people who had not previously drunk, and these results show that drinking is an even stronger predictor of trying smoking among those who had not previously smoked. Use of alcohol and tobacco is therefore strongly reciprocal: young people who try alcohol for the first time are more likely to try smoking and vice-versa. However, as with other behaviours our analyses found that smoking did not lead to young people increasing their frequency of drinking.

Figure 5.14 Alcohol consumption as a predictor of taking up smoking (with and without adjustment for other factors)



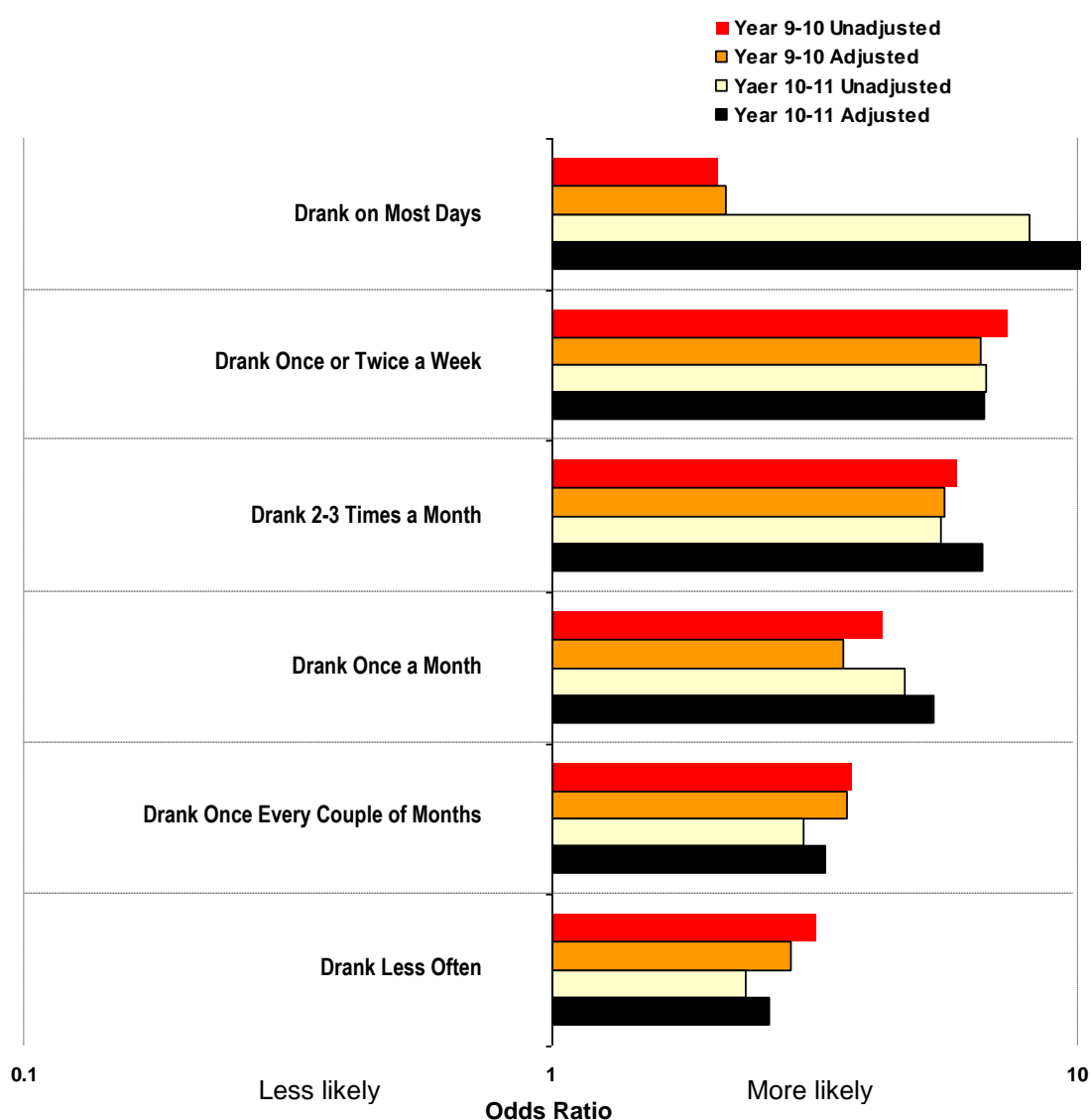
ORs greater than 1 indicate young people who were more likely to have taken up smoking, ORs less than 1 indicate young people who were less likely to have taken up smoking

Finally, we looked at alcohol consumption as a predictor of trying cannabis among young people who had not previously tried it (see Figure 5.15 below). We found that young people who had tried alcohol were more likely to try cannabis in the following year than

those who did not drink, although this relationship (like that with smoking) decreased slightly with age. We also found a much weaker relationship between drinking on most days and trying cannabis at ages 14-15 compared to the relationship found at ages 15-16, but this may be because both drinking on most days and having tried cannabis are very rare among this age group.

These results are very similar to those we found looking at drinking and taking up smoking, and show that drinking and having tried cannabis are also very closely linked among young people. As with smoking, the relationship between drinking and subsequently trying cannabis tended to be stronger than that between trying cannabis and subsequently trying alcohol, and again there was no positive relationship between trying cannabis and increasing frequency of drinking. However, there is evidence of a reciprocal relationship between drinking and trying cannabis, indicating that many of the same young people may engage in both these behaviours.

Figure 5.15 Alcohol consumption as a predictor of trying cannabis (with and without adjustment for other factors)



ORs greater than 1 indicate young people who were more likely to have tried cannabis, ORs less than 1 indicate young people who were less likely to have tried cannabis

5.6 How does drinking at age 14 relate to educational outcomes at age 16/17?

In the final stage of our analyses we explored how different frequencies of drinking at age 14 related to later educational outcomes. In these analyses, we also sequentially adjusted for different groups of other factors in order to see whether other characteristics of young people might be responsible for the relationships that were found. First, we adjusted for socio-demographic and background factors, then other behaviours, and finally attitudes and aspirations. All of these groups of factors are detailed above in earlier stages of the analyses (sections 5.2-5.5).

First, we looked at drinking as a predictor of not being in employment, education or training (NEET) at age 16/17. Before adjustment for other factors, drinking more than twice a month was associated with having between 1½ and 2½ times the odds of being NEET. This relationship was slightly reduced by adjustment for socio-demographic factors, but was almost completely removed when we adjusted for other behaviours. The main behaviours accountable for the relationship between drinking and being NEET were being suspended or playing truant, because young people who drank frequently were more likely to be suspended or to play truant (as demonstrated above in section 5.4), and this in turn led to an increased likelihood of being NEET. Smoking, fighting and hanging around near home were also factors that reduced the size of the relationship. Finally, additional adjustment for attitudes and aspirations made little difference to the relationship. After adjustment, there was virtually no significant relationship between alcohol consumption and being NEET, showing that socio-demographic factors and other behaviours explained almost all of the relationship between drinking and becoming NEET. This therefore shows that drinking is unlikely to directly lead to young people becoming NEET, but instead operates through other factors such as increased truancy. The results of these analyses can be found in Table 5.1 below.

Table 5.1 Drinking at age 14 as a predictor of being NEET at age 16/17

	Unadjusted	Adjustment for Socio-Demographic Factors	Adjustment for Other Behaviours	Adjustment for Attitudes and Aspirations
Frequency of Drinking	(OR)	(OR)	(OR)	(OR)
Most Days	2.51	1.93	0.63	0.58
Once or Twice a Week	2.05	2.06	1.18	1.40
2-3 Times a Month	1.49	1.45	0.92	0.90
Once a Month	0.19	0.68	0.51	0.47
Once Every Couple of Months	1.05	1.08	0.91	1.04
Less Often	1.39	1.15	0.99	0.95

Shaded ORs are statistically significant at the 5% level.

Next, we looked at drinking as a predictor of GCSE scores. Because these were linear models with a continuous score as the outcome, the outputs represent change in GCSE points score associated with drinking compared to not drinking rather than ORs as presented in the other analyses. Before adjustment, drinking once or twice a week was associated with scores around 30 points lower (equivalent to 5 grades, or the difference between an A* and an E in one subject), and drinking on most days was associated with scores around 100 points lower (equivalent to 16 grades). Less frequent drinking showed no significant relationship with subsequent GCSE scores. This relationship was slightly

reduced after adjustment for socio-demographic factors, so that drinking once or twice a week was associated with scores around 20 points lower (equivalent to 3 grades) and drinking on most days was associated with scores around 80 points lower (equivalent to 13 grades). It was reduced again (although only among those drinking once or twice a week) by adjustment for other behaviours. After this adjustment drinking less frequently was actually associated with slightly higher GCSE scores, although drinking on most days was still associated with much lower scores. However, after adjustment for attitudes and aspirations, there was no longer any relationship between drinking frequently and lower GCSE scores. In fact, after accounting for the lower aspirations and more negative attitudes of young people who drank alcohol, GCSE scores were slightly higher among those who drank moderately.

These results appear to indicate that the relationship between drinking and poorer GCSE results is partly due to background characteristics such as social position and local area, partly due to taking part in other behaviours that also lower scores (which in themselves may also be linked to drinking), and partly due to the lower attitudes and aspirations of those who drink. The previous NatCen study which explored a range of risky behaviours had found that drinking was actually associated with higher GCSE results, but those results were obtained after adjustment for a number of other characteristics. The present results show that before this adjustment, drinking is actually associated with *lower* GCSE results, but that this is largely due to its relationship with the other factors mentioned above. These models have therefore enabled us to clarify a relationship that seemed counter-intuitive according to previous data. The results of these analyses can be found in Table 5.2 below.

Table 5.2 Drinking at age 14 as a predictor of GCSE scores				
Frequency of Drinking	Unadjusted (Change in Score)	Adjustment for Socio- Demographic Factors (Change in Score)	Adjustment for Other Behaviours (Change in Score)	Adjustment for Attitudes and Aspirations (Change in Score)
Most Days	-101.93	-78.76	-81.69	-53.43
Once or Twice a Week	-27.18	-22.08	5.25	3.86
2-3 Times a Month	-3.09	-5.10	11.43	16.06
Once a Month	3.40	-0.46	4.63	-3.40
Once Every Couple of Months	6.18	6.18	10.04	16.99
Less Often	-2.16	2.16	9.88	2.93

Shaded ORs are statistically significant at the 5% level.

Finally, we looked at alcohol consumption as a predictor of remaining in full-time education beyond age 16. Before adjustment for any other factors, we found that all young people who drank at the age of 14 were less likely to remain in full-time education than those who did not drink, and that those who drank on most days had more than 5 times the odds of being in full-time education. After adjustment for socio-demographic factors, this relationship reduced in strength but remained statistically significant for all young people who had tried alcohol. However, after adjustment for other behaviours it was much reduced, and only those who drank once every couple of months or less remained less likely to stay in full-time education. Adjustment for attitudes and aspirations made little additional difference. It therefore appears that other behaviours (such as truancy and hanging around with friends) lie on a causal pathway between drinking and leaving full-

time education at the age of 16, meaning that drinking may lead to other negative behaviours that make young people more likely to leave full-time education, but that drinking is unlikely to lead directly to this outcome. The results of these analyses can be found in Table 5.3 below.

Table 5.3 Drinking at age 14 as a predictor of remaining in full-time education				
	Unadjusted	Adjustment for Socio- Demographic Factors	Adjustment for Other Behaviours	Adjustment for Attitudes and Aspirations
Frequency of Drinking	(OR)	(OR)	(OR)	(OR)
Most Days	0.19	0.25	0.55	0.67
Once or Twice a Week	0.45	0.53	0.99	1.00
2-3 Times a Month	0.48	0.54	0.81	0.84
Once a Month	0.64	0.71	0.83	0.83
Once Every Couple of Months	0.59	0.63	0.70	0.74
Less Often	0.58	0.69	0.79	0.82
Shaded ORs are statistically significant at the 5% level.				

6 Conclusions and Recommendations

This study has identified a number of characteristics of young people who have tried alcohol, as well as some slightly different characteristics of those who drink alcohol frequently. Most of these have been identified in previous studies, but this study was also able to compare the relative *importance* of different characteristics in order to determine those which have the strongest relationships with drinking behaviour. We were also able to explore the links between drinking and other behaviours, and look at the order in which these behaviours tend to be adopted. Finally, we also identified relationships between drinking and educational outcomes, and demonstrated how these relationships were mediated by relationships with other factors. The conclusions drawn from these results and subsequent policy recommendations are summarised below.

6.1 Characteristics of young people who drink

Ethnicity and importance of religion

These were the most important predictors of drinking behaviour among the young people studied. Our results showed that white young people were by far the most likely to have ever tried alcohol at all four ages, and they were also the most likely to drink frequently. Indian, Pakistani and Bangladeshi young people were the least likely to have tried alcohol at all ages. Young people whose religion was very important to them were by far the least likely to drink alcohol, followed by those whose religion was fairly important to them. These two factors both had independent effects on the likelihood of having tried alcohol, even though they are also closely related to one another.

Bullying

The next most important characteristic associated with trying alcohol was having been bullied. It is difficult to determine causality with this factor, because it is possible that being bullied leads directly to drinking, but also that drinking leads to a greater likelihood of being bullied due to bullying being more prevalent within the circles of young people who drink alcohol. However, we found that young people who had been bullied in the previous year had around 1½ times the odds of having tried alcohol compared to those who had not been bullied. Young people who had been bullied in the previous year were also more likely to be frequent drinkers (more than once a week), and had 5 times the odds of drinking on most days at age 14 (although the strength of this relationship had reduced by the age of 16). It therefore appears that drinking is inextricably linked with being bullied, even after adjusting for other characteristics of the young person such as their social position, gender and ethnicity. Tackling bullying may therefore help to reduce young people's drinking, particularly at younger ages where the relationship is strongest.

Gender

We found that girls were more likely to have tried alcohol than boys up to the age of 17, at which point boys became slightly more likely to have drunk alcohol. However, boys were 50% more likely to drink on most days at the age of 14, indicating that boys start drinking

more frequently at earlier ages than girls. Interestingly, we found that gender was a less important predictor of drinking behaviour than ethnicity or importance of religion.

SEN and disability

Young people with SEN or disabilities were less likely to have tried alcohol than other young people at all the ages we studied. We were not able to split these results into type of SEN or disability, but the results do indicate that young people who are vulnerable in these ways are not more likely to drink alcohol or to drink more frequently than other young people.

Social class / family background

These factors were less important than we had previously theorised in terms of the likelihood of young people having tried alcohol or the frequency of drinking. However, we did find that young people with parents who were unemployed and those whose mothers had no UK qualifications were less likely to have tried alcohol. This seems to indicate that young people of very low social position may be less likely to try alcohol, possibly because it is less likely to be available in the home. We also found that young people from single-parent families or those with no biological parents were more likely to have drunk alcohol, and were more likely to drink once or twice a week than other young people. This may be due to having less parental supervision and therefore easier access to alcohol.

School-level factors

We found that young people who attended schools with a larger proportion of white pupils were more likely to have tried alcohol regardless of their own ethnic group, as were those who attended schools with fewer pupils who received free school meals (FSM), again regardless of their own FSM status. These results may indicate the presence of aspects of a “drinking culture” in some schools, whereby having a higher proportion of individual pupils who drink makes it more likely that those pupils who have characteristics that make them less likely to drink (e.g. being from minority ethnic groups) are also more likely to try alcohol.

Policy recommendations

The results indicate the characteristics of young people who are most likely to drink alcohol, namely white young people, those who are not religious and younger girls. Policy initiatives designed to reduce alcohol consumption among young people would therefore benefit from focusing on these young people in particular. School-level initiatives are also likely to be important, since we have identified evidence of possible ‘drinking cultures’ which seem to make a difference to individual pupils’ propensity to begin drinking. Finally, we have shown that there is a strong link between bullying and drinking, and therefore anti-bullying initiatives could have the added benefit of reducing levels of drinking among some pupils.

6.2 Links between drinking and other behaviours, attitudes and outcomes

We found that young people who drank alcohol were more likely to take part in risky behaviours (e.g. smoking, trying cannabis, shoplifting and graffiti) and were also more likely to take part in socialising activities (e.g. hanging around with groups of friends, playing sport and going to parties). They also tended to have more negative attitudes to education (as did their parents) and lower aspirations, and were the most likely to have been bullied in the last year. These relationships occurred for all frequencies of drinking, but were slightly different among young people who drank on most days. These young people were less likely to take part in socialising activities but still engaged in some of the more damaging activities such as smoking, fighting and graffitiing. This indicates that young people who drink the most frequently may have different characteristics and behaviours compared to those who drink less regularly, and they may also have more negative outcomes since they are more likely to be victims of bullying and involved in violence.

We also found little relationship between drinking and self-developmental activities (those that were recorded in LSYPE), except that young people who drank on most days were less likely to take part in community work. We found no relationship between drinking and attending youth clubs or reading for pleasure, and we found that young people who took part in sport or played a musical instrument were actually slightly more likely to drink than those who did not. It therefore appears that taking part in activities that might be considered to be self-developmental does not seem to deter young people from drinking.

Policy recommendations

The single strongest relationship we found between drinking and other behaviours was between drinking on most days and having been involved in a fight or public disturbance. This indicates a powerful relationship between drinking and violent behaviour. Links with smoking and trying cannabis were also found to be particularly important. However, it may be important for policy makers to be aware that young people who drink on most days have a different range of associated behaviours compared to those who drink less frequently. These seem to be less closely linked with group activities such as hanging around and going to parties or pubs, and more strongly linked with violence and being bullied. Interventions designed to help the small proportion of young people who are drinking on most days may therefore need to focus less on group anti-social behaviour and more on the individual problems of these young people who may be particularly damaged by their alcohol consumption and associated difficulties.

6.3 Causal relationships between drinking and other behaviours

We found that a number of other behaviours predicted trying alcohol for the first time among the subgroup of young people who had not previously tried alcohol at ages 14 or 15. Smoking or having tried cannabis were especially predictive of drinking alcohol in the following year, however playing truant, shoplifting, going to parties or pubs and hanging around near home or in town were also important. A strong relationship between both

smoking and trying cannabis and trying alcohol was also evident in reverse, with drinking also leading to an increased risk of smoking or trying cannabis in the following year. What this suggests is that young people who engage in one of these behaviours are then also more likely to also engage in others, but that there is no evidence of a definitive order to these behaviours. Instead, the general propensity to experiment with narcotics is likely to have other shared antecedents. Drinking alcohol was slightly more predictive of increasingly playing truant than the reverse, indicating that young people who drink may be more likely to become disengaged from school. However, the relationship was still fairly reciprocal, suggesting that skipping school also allows young people more unsupervised time to experiment with trying alcohol. In relation to engaging in criminal activity the direction of causality was more evident. Drinking alcohol, particularly frequent drinking, strongly predicted increased engagement in criminal behaviour, whereas the relationship was largely non-existent in the reverse. Interestingly, none of the other behaviours we looked at were predictive of increased *frequency* of drinking (although they may have been predictive of increased *consumption*, which was not something we were able to look at).

Policy recommendations

We found no evidence that self-developmental activities such as reading for pleasure or participating in community work prevented uptake of drinking or increased frequency of drinking among young people, suggesting that interventions to increase participation in the self-developmental activities measured in LSYPE (such as reading for pleasure, doing community work etc.) is unlikely to have much impact on frequency of drinking among young people¹. On the other hand, it is likely that interventions specifically to reduce drinking would be likely to decrease incidence of other risky behaviours such as criminal activity, truancy, smoking and cannabis use, as all these behaviours were found to be closely linked. Our research also confirms that activities such as going to pubs and parties and hanging around near home or in town (i.e. frequenting settings where alcohol is likely to be available and unsupervised by parents) make young people more likely to try alcohol if they had not already started drinking by the age of 14 or 15. Therefore, discouraging young people from taking part in these activities is likely to reduce the likelihood of them trying alcohol in the first place, although our analyses also show that it is unlikely to prevent them from increasing their *frequency* of drinking once they have already tried alcohol.

6.4 Alcohol consumption and educational outcomes

The results of our analyses show that young people who had tried alcohol had more negative educational outcomes than those who had not, and that this was especially true for those who drank frequently. However, these relationships were largely due to the

¹ It is important to note that the list of positive activities measured in LSYPE is not identical to the structured and supervised positive activities promoted by current policy. To this end, we cannot say that positive activities do not lead to a reduction in drinking *per se*. Nevertheless, our findings do question any naive assumptions that engaging young people in positive activities will necessarily lead to a reduction in their engagement in risky behaviours.

influence of other factors on the educational outcomes we looked at. In the case of young people who were NEET and those who were more likely to have left school at the age of 16, the relationship with drinking was largely explained by the links between drinking and other behaviours, particularly truancy, risk of being suspended from school, smoking and hanging around near home. As our causal analyses showed, these are more likely to be a consequence than an antecedent of drinking, and therefore the causal pathway appears to go from drinking to other risky behaviours and thence to an increased likelihood of having left school at 16 (and particularly of being NEET).

When looking at GCSE scores, we also found that drinking behaviour was strongly related to attainment. As with young people who were NEET, this relationship was slightly reduced by adjustment for socio-demographic factors, but in this case adjustment for other behaviours did not much alter the relationship. Instead, we found that adjustment for attitudes and aspirations removed almost all of the inverse relationship between drinking and attainment. It is difficult to disentangle the causal relationship between attitudes and aspirations and drinking, but we would suggest that this is likely to be a reciprocal relationship. However, since the young people's attitudes and aspirations used in these analyses were recorded when the young people were aged 14, it seems reasonable to suggest that lower attitudes and aspirations lead to an increased likelihood of drinking, which in turn leads to even lower attitudes and aspirations as well as lower GCSE scores.

Policy recommendations

It is interesting that our results show a slightly different chain of causality for young people who become NEET or who do not remain in full-time education post-16 compared to educational attainment. This suggests that missing school (whether through truancy or suspension) is a particular risk for leaving school at 16 (and especially for becoming NEET), and that drinking is a factor which can increase the risk of young people going down this path. Other related behaviours that partially explained the association between drinking and leaving school were hanging around near home, fighting and smoking. We would therefore recommend further investigation of the alcohol consumption of young people who go on to become NEET, as well as interventions to protect young people at risk of truancy or suspension from school. More generally, it is clear from these analyses that young people's attitudes and aspirations (and those of their parents) are both of paramount importance to their educational outcomes (particularly in terms of GCSE scores) and strongly linked with their alcohol consumption. Since these attitudes and aspirations are likely to have crystallised relatively early in young people's lives, we would suggest earlier interventions to help raise the aspirations of young people and their parents, as well as encouraging more positive attitudes to education. Not only may these directly reduce drinking frequency among young people, but they may also be beneficial with regard to a host of other behaviours (such as truancy, smoking and violence) which this study has shown to be strongly linked.

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Appendix A Glossary of Terms

FSM – Free school meals

LSYPE – Longitudinal Study of Young People in England

NPD – National Pupil Database

OR – Odds ratio (main output measure for analyses, indicating odds of having a particular outcome – e.g. drinking – if a young person falls into a particular category of another variable – e.g. being female)

PLASC – Pupil Level Annual School Census

PRU – Pupil Referral Unit

SDD Survey – the Smoking, Drinking and Drug Use Among Young People in England Survey (most recent data available from the 2008 survey, published in 2009)

SEN – special educational needs

Wave 1 – the first data collection phase of LSYPE, conducted in 2004 when the respondents were in Year 9. This corresponds to Key Stage 3 in their education

Wave 2 – the second data collection phase of LSYPE, conducted in 2005 when the respondents were in Year 10

Wave 3 – the third data collection phase of LSYPE, conducted in 2006 when the respondents were in Year 11. This corresponds to Key Stage 4 in their education

Wave 4 – the fourth data collection phase of LSYPE, conducted in 2007 when the respondents were in Year 12 or had left full-time education.

Appendix B Factors Not Included in Final Models

Variables not found to be strongly associated with attainment or not found to improve the overall model were left out of the analyses. These were:

- Receipt of free school meals (FSM)
- Language spoken at home
- Whether the young person was a carer
- Percentage of pupils in a school with SEN
- Percentage of pupils in a school without English as a first language
- Pupil to teacher ratio
- School admissions policy
- Gender of school
- Local-Authority level variables

Appendix C Derived Variables

A number of derived variables were used in the analyses for this study, although not all were included in the final models as they did not necessarily reach significance or improve the model as a whole. A list of the variables derived by NatCen and how they were created can be found below in Table 6.1.

Table 6.1 Derived Variables Used in Analyses		
Variable Description	Method of Derivation	Waves
Young person's ethnic group	Information on ethnic group taken from young person interview, and coded into one of 8 groups (White, Mixed, Indian, Pakistani, Bangladeshi, Black African, Black Caribbean and Other) – if no young person interview this information was taken from the household grid	1, 2, 3, 4
Mother's highest qualification	List of 50 possible qualifications for main and second parent coded into 7 groups (degree or equivalent, higher education below degree level, GCE A-level or equivalent, GCSE grades A-C or equivalent, qualifications at Level 1 and below, other qualifications, and no qualification), with only highest qualification of mother recorded	1, 2, 3, 4
Main parent's NS-SEC class	Main parent's occupational category calculated from ONS lookup table and grouped into 8 classes (higher managerial and professional, lower managerial and professional, intermediate, small employers and own account workers, lower supervisory and technical, semi-routine, routine and never worked/unemployed)	1, 2, 3, 4
Parental attitudes to education	Scale comprised of main parent's answers to questions (agreement with statements that young people need qualifications to get a good job, that leaving school at 16 limits opportunities and that they want the young person to have a better education than they had, plus details of what the parent would do to help the young person to stay in education), recoded so that higher scores indicate more positive attitudes	1
Young person's attitude to school	Scale comprised of whether the young person is happy at school, whether they feel schoolwork is a waste of time, whether they are bored at school and whether they are engaged with schoolwork, recoded so that higher scores indicate a more positive attitude to school	1
Family cohesion score	Scale comprised of how well the young person gets on with their parent(s), how often they talk to their parent(s) about things that matter, how often they have a family meal, how often parent(s) know where they are going in the evening and how often they talk to their parent(s) about their day at school	1
Whether young person has a disability/long term illness or health problem	Calculated from two variables present in dataset which code whether the young person has a disability and, if so, whether this makes it hard for them to attend school regularly	1, 2, 3, 4
Whether household is a single parent household	Uses household grid relationships to identify whether none, one or two parents of the young person are present in the household	1, 2, 3, 4
Percentage of non-White British pupils in school	Percentage of White pupils was removed from total (taken from NPD) for relevant year (2004 for Wave 1 or 2006 for Wave 3)	1, 2, 3, 4
Z-scores for attainment at Key Stage 4	Calculated using raw points scores minus the population mean score, divided by the population standard deviation. These were included in models and then back-transformed to raw scores for report	3
Crime variable	Combined from variables for each Wave indicating whether young person had taken part in vandalism, shoplifting or graffiti	1, 2, 3
Variables showing uptake or increased frequency of drinking	Calculated where young person did not drink in Wave 1/2 and then started in Wave 2/3, or where frequency of drinking increased in the following Wave	1, 2, 3
Variables showing uptake of other behaviours	Calculated where young person increased frequency of crime, truancy, smoking or cannabis use from Wave 1/2 or Wave 2/3	1, 2, 3

Appendix D Tables of Results

In the following tables, highlighted figures are those which are statistically significant at the 5% level. Any columns where figures are omitted are due to the variable in question not being a significant factor in the model, and therefore being removed from this particular analysis.

Predictors of Drinking Alcohol: Individual Characteristics			
	Year 9	Year 10	Year 11
Predictor	(OR)	(OR)	(OR)
Gender (female)	1.13	1.38	1.19
Ethnicity (Ref: White)			
Mixed	0.81	0.75	0.57
Indian	0.20	0.26	0.21
Pakistan	0.03	0.04	0.03
Bangladesh	0.03	0.01	0.05
Black Caribbean	0.74	0.58	0.52
Black African	0.19	0.25	0.26
Other	0.37	0.29	0.24
Bullied (in last 12 months)	1.63	1.45	1.49
Disability	0.82	0.81	0.72
Special Educational Needs	0.78	-	0.49
Importance of Religion (Ref. no religion)			
Very Important	0.29	0.26	0.21
Fairly Important	0.63	0.58	0.55
Not Very Important	0.93	0.97	0.98
Not At All Important	1.22	1.06	1.16

Predictors of Drinking Alcohol: Family Social Position

	Year 9	Year 10	Year 11
Predictor	(OR)	(OR)	(OR)
Parental NS-SEC (Ref. Professional)			
Intermediate	1.12	-	1.13
Routine and Manual	0.95	-	0.97
Never Worked/Unemployed	0.78	-	0.70
Single Parent/No Parents	1.25	1.32	1.34
Mother's Highest Qualification (Ref. Degree)			
HE Below Degree	-	0.88	0.91
A Levels	-	0.85	0.99
GCSE A-C	-	0.89	0.90
Level 1 or Below	-	0.77	0.83
Other	-	0.84	-
No UK Qualifications	-	0.63	0.68

Predictors of Drinking on Most Days: Individual characteristics

	Year 9	Year 10	Year 11
Predictor	(OR)	(OR)	(OR)
Gender (female)	0.53	-	-
Ethnicity (Ref. White)			
Mixed	N/A	0.84	0.64
Indian	N/A	0.13	0.06
Pakistani	N/A	0.14	0.07
Bangladeshi	N/A	0.18	0.68
Black Caribbean	N/A	0.07	0.70
Black African	N/A	0.33	0.16
Other	N/A	0.33	0.03
Mother's Highest Qualification (Ref. Degree)			
HE Below Degree	0.38	-	-
A Levels	1.08	-	-
GCSE A-C	0.70	-	-
Level 1 or Below	0.51	-	-
Other	3.98	-	-
No UK Qualifications	1.02	-	-
Bullied (in last 12 months)	4.96	2.55	2.96
Importance of Religion (Ref. no religion)			
Very Important	N/A	0.58	0.89
Fairly Important	N/A	0.59	0.91
Not Very Important	N/A	0.67	0.59
Not At All Important	N/A	1.01	2.05

Predictors of Drinking Once or Twice a Week: Individual Characteristics

	Year 9	Year 10	Year 11
Predictor	(OR)	(OR)	(OR)
Gender (female)	-	-	0.82
Ethnicity (Ref: White)			
Mixed	0.69	0.85	0.83
Indian	0.13	0.08	0.21
Pakistani	0.01	0.03	0.05
Bangladeshi	0.02	0.05	0.07
Black Caribbean	0.44	0.65	0.26
Black African	0.01	0.13	0.18
Other	0.58	0.17	0.17
Bullied (in last 12 months)	1.57	1.20	1.36
Special Educational Needs	-	-	0.72
Importance of Religion (Ref. no religion)			
Very Important	0.38	0.40	0.47
Fairly Important	0.60	0.63	0.58
Not Very Important	0.78	0.91	0.87
Not At All Important	1.04	1.09	1.11
Single Parent/No Parents	1.38	1.29	-

Predictors of Drinking Alcohol: Other Behaviours/Attitudes

	Most Days	Once or Twice a Week	2-3 Times a Month	Does Not Drink
Predictor	(OR)	(OR)	(OR)	(OR)
Been Suspended	1.45	0.93	0.77	-
Played Truant	-	0.84	-	-
Smoker	1.89	1.43	1.69	0.40
Tried Cannabis	-	1.78	1.87	0.35
Graffiti'd	1.69	-	-	-
Vandalised Property	-	-	1.36	-
Been in a Fight	1.97	-	1.32	-
Played Sport	-	1.24	-	0.62
Been to a Party, Dance or Nightclub	-	1.23	1.42	0.50
Been to a Pub or Bar	-	1.78	1.88	0.31
Played a Musical Instrument	-	1.17	1.19	0.58
Hung Around Home	-	1.27	1.50	0.53
Hung Around Town	-	1.42	1.80	0.51
Done Community Work	0.17	-	-	-
More Positive Attitude to School	0.96	0.97	-	1.06
Higher Family Cohesion Score	0.92	0.96	-	1.06
More Positive Parental Attitudes to Education	0.94	0.97	-	1.06
Post-Year 11 Aspirations (Ref. FTE)			-	
Work-based training/part time education		1.51	-	0.40
Working full time		1.47	-	0.95
Something else		1.71	-	0.78
Don't know		0.91	-	1.03

Predictors of Increase in Drinking Frequency

Predictor	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
	(OR)	(OR)	(OR)	(OR)
Been Suspended	1.20	1.29	-	-
Been Expelled	0.37	0.48	1.93	2.59
Played Truant	0.92	0.94	1.05	1.16
Smoker	-	-	0.81	0.77
Tried Cannabis	-	-	0.82	0.76
Graffitied	0.87	0.78	0.80	0.92
Vandalised Property	-	0.91	0.66	0.60
Shoplifted	0.79	0.78	0.89	0.96
Been in a Fight	0.85	0.92	-	-
Played Sport	1.07	-	1.15	1.10
Been to a Party, Dance or Nightclub	-	-	0.89	0.89
Been to a Pub or Bar	0.83	0.87	0.73	0.85
Played a Musical Instrument	0.90	0.94	-	-
Attended a Youth Club	1.20	1.17	-	-
Hung Around Town	-	-	1.08	-

Predictors of Drinking Uptake

Predictor	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
	(OR)	(OR)	(OR)	(OR)
Been Suspended	0.97	1.36	0.94	2.03
Been Expelled	0.24	10.60	0.25	7.16
Played Truant	1.69	2.05	1.05	1.67
Smoker	3.46	3.00	2.07	2.12
Tried Cannabis	2.87	3.72	2.49	3.19
Graffitied	1.30	1.78	1.03	0.84
Vandalised Property	1.27	1.86	1.05	1.49
Shoplifted	1.84	1.75	1.69	3.50
Been in a Fight	1.20	1.80	1.23	1.65
Played Sport	1.21	1.08	1.34	1.23
Been to a Party, Dance or Nightclub	2.50	2.64	1.60	1.79
Been to a Pub or Bar	2.19	1.42	2.54	1.62
Played a Musical Instrument	1.53	1.07	1.17	0.95
Attended a Youth Club	0.84	1.18	0.91	0.91
Hung Around Home	1.54	1.35	1.54	1.43
Hung Around Town	1.75	1.53	1.54	1.70

Predictors of Increase in Drinking Frequency

	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
Predictor	(OR)	(OR)	(OR)	(OR)
Been Suspended	1.20	1.29	-	-
Been Expelled	0.37	0.48	1.93	2.59
Played Truant	0.92	0.94	1.05	1.16
Smoker	-	-	0.81	0.77
Tried Cannabis	-	-	0.82	0.76
Graffitied	0.87	0.78	0.80	0.92
Vandalised Property	-	0.91	0.66	0.60
Shoplifted	0.79	0.78	0.89	0.96
Been in a Fight	0.85	0.92	-	-
Played Sport	1.07	-	1.15	1.10
Been to a Party, Dance or Nightclub	-	-	0.89	0.89
Been to a Pub or Bar	0.83	0.87	0.73	0.85
Played a Musical Instrument	0.90	0.94	-	-
Attended a Youth Club	1.20	1.17	-	-
Hung Around Town	-	-	1.08	-

Alcohol Consumption as a Predictor of Increased Criminal Behaviour

	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
Predictor	(OR)	(OR)	(OR)	(OR)
Most Days	3.87	3.95	6.63	6.67
Once or Twice a Week	4.55	5.08	4.57	6.15
2-3 Times a Month	3.11	3.54	2.53	3.56
Once a Month	2.00	1.91	1.80	2.31
Once Every Couple of Months	2.30	2.57	1.67	2.10
Less Often	1.79	1.69	1.39	1.98

Alcohol Consumption as a Predictor of Increased Truancy

	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
Predictor	(OR)	(OR)	(OR)	(OR)
Most Days	3.57	4.60	14.15	12.82
Once or Twice a Week	3.87	4.30	6.15	7.28
2-3 Times a Month	3.38	4.09	3.40	4.46
Once a Month	2.33	2.46	3.03	3.65
Once Every Couple of Months	2.11	2.21	2.35	2.69
Less Often	2.09	2.06	1.94	2.29

Alcohol Consumption as a Predictor of Taking Up Smoking

	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
Predictor	(OR)	(OR)	(OR)	(OR)
Most Days	4.33	3.58	5.66	5.76
Once or Twice a Week	5.02	4.40	4.38	3.07
2-3 Times a Month	3.76	3.30	4.10	3.44
Once a Month	3.33	2.85	2.31	2.29
Once Every Couple of Months	3.08	2.65	2.61	2.36
Less Often	2.47	2.08	2.23	1.81

Alcohol Consumption as a Predictor of Trying Cannabis

	Year 9-10 Unadjusted	Year 9-10 Adjusted	Year 10-11 Unadjusted	Year 10-11 Adjusted
Predictor	(OR)	(OR)	(OR)	(OR)
Most Days	2.07	2.14	8.06	11.43
Once or Twice a Week	7.32	6.53	6.69	6.64
2-3 Times a Month	5.89	5.57	5.50	6.60
Once a Month	4.25	3.58	4.67	5.31
Once Every Couple of Months	3.72	3.65	3.02	3.31
Less Often	3.19	2.85	2.33	2.59

Appendix E Composition of Additive Scales

Family cohesion score

Additive score (higher scores indicate higher levels of cohesion) comprised of:

How well young person gets on with (step) mother

How well young person gets on with (step) father

How often young person talks to (step) mother about things that matter to young person

How often young person talks to (step) father about things that matter to young person

How many times young person has eaten evening meal with family in last 7 days

How often parents know where young person going when out in evening

How often parents talk to young person about day at school

Main parent's involvement in young person's education

Additive score (higher scores indicate greater levels of involvement) comprised of:

Whether main parent or partner has been to any parents' evenings or similar events at school

How often main parent speaks to young person's teachers about schooling

How involved does main parent personally feel in young person's school life

Whether main parent ever talks about young person's school reports with them

Frequency of main parent talking to young person about report

Activities main parent or partner get involved in:

- help out in class

- help out elsewhere e.g. library, school trips, dinner duty

- help out with fundraising activities

- help out with special interest groups like sports, drama

- get involved in parents' and teachers' associations

- help with teacher assessments

- school, parent governor

- hosted an exchange student

- attend events at school

Main parent's attitude to education

Additive score (higher scores indicate more positive attitudes) comprised of:

Agreement with statement: about education, work and training for young people:

Nowadays you need qualifications in order to get a job worth having

Agreement with statement: Leaving school at 16 limits young people's career opportunities later in life

Whether main parent wants young person to have a better education than main parent had

What main parent is likely to do to keep young person in education:

- save money now specifically for education

- give money from existing savings

- support out of wages or earnings

take out loan or remortgage
pay school or college fees
help with accommodation (e.g. let young person stay rent free)
borrow money from other relatives or friends
help in other ways

Young person's attitude to education

Additive score (higher scores indicate more positive attitudes) comprised of:

Young person's feelings about school:

I am happy when I am at school
school is a waste of time for me (reverse coded)
school work is worth doing
most of the time I don't want to go to school (reverse coded)
on the whole I like being at school
I work as hard as I can in school
in a lesson, I often count the minutes till it ends (reverse coded)
I am bored in lessons
the work I do in lessons is a waste of time (reverse coded)
the work I do in lessons is interesting to me

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